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MANUAL FOR

ARMY COOKS

1916

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WAR DEPARTMENT,

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OFFICE OF THE QUARTERMASTER GENERAL.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF STAFF,
Washington, November 21, 1916.

The following "Manual for Army Cooks," prepared under the direction of the Quartermaster General of the Army, by Capt. L. L. Deitrick, Quartermaster Corps, aided by Maj. L. R. Holbrook, Quartermaster Corps; Capt. E. S. Wheeler, Fourth Field Artillery; and Capt. W. H. Smith, Seventh Cavalry, is approved and herewith published for the information and guidance of the Regular Army and the Organized Militia of the United States.

By order of the Secretary of War:

H. L. SCOTT,
Major General, Chief of Staff.

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MANUAL FOR ARMY COOKS.

Chapter No. 1.

DEFINITIONS.

1. **Aerated bread.**—Bread resulting from a dough into which carbonic gas is mechanically introduced, in order to save the starch, which is otherwise lost as a result of yeast fermentation.

2. **Albumen.**—The transparent nitrogenous substance which forms the chief and characteristic constituent of white of an egg. Albumen is found also in blood, in all serous fluids, and in many animal and vegetable juices and solids.

3. **Allspice.**—A common spice (the berry of a West Indian tree) used in mincemeat, brown cakes, puddings, soups, game entrées, and gellatin jellies. Ground or whole, it is used in pickling pigs' feet, tripe, sweet pickles, etc. It is supposed to combine the flavors of cinnamon, nutmeg, and cloves; hence the name.

4. **Ambergris.**—A waxy substance obtained from the intestines of the sperm whale. It is much used in flavoring liquors and in perfumes.

5. **Aniline.**—Dye used in highly colored confectionery. A product of petroleum. The red shades are harmless, but the chemicals used in making blue, green, and other colors are injurious.

6. **Aniseed.**—A small seed used for flavoring. Resembles *caraway seed* or *celery seed.*

7. **Annatto.**—A yellowish-red dye used in coloring cheese, butter, silk, and varnish. Obtained from a tropical tree.

8. **Arrow root.**—The starch of the root of a West Indian plant. It is very similar to *sago* and to *tapioca.* It is frequently made into a gruel for the sick, but is little used in the company. So called from

the reputed use of it by the natives to heal wounds from poisoned arrows.

9. **Baking.**—Cooking in a dry heat, as in a closed oven.

10. **Baking powder.**—A mixture of a carbonate of soda and an acid reagent (as cream of tartar, phosphoric acid, or some form of alum) together with a small quantity of starch or other material to keep the active agents better separated. The acid and the carbonate combine when mixed with water, liberating carbonic acid gas, which, in rising, forms in pockets or cells in the dough, making it light and spongy. Cold water or cold milk should be used in the mixture, which should be disturbed as little as possible after the baking powder has been added. The dough should be baked as soon as possible after being prepared, or it should be set in a cool place until the oven is ready. The objection to the use of baking powder is that, as a result of the chemical reaction, certain solids are left in the bread, cake, etc., which are more or less injurious, but they produce no harmful results if used in limited quantities. The exclusive use of baking powder bread is impracticable as it turns against the stomach. Compare with yeast.

11. **Baking temperature.**—Generally stated as 385° F., though bread may safely be baked at a somewhat higher or lower temperature, between about 300° and 450° F. Many other articles are baked at much lower temperatures.

12. **Barbecue.**—To roast or broil whole. Or an entertainment for which the carcass of an animal, as a hog, is roasted or broiled whole.

13. **Basil.**—One of the standard pot herbs of the mint family. Much used in turtle soup.

14. **Baste.**—Sometimes to sprinkle, as with pepper or salt; generally to dash or pour a liquid over with a spoon, as in the case of gravy or stock in baking or roasting.

15. **Batter.**—A thick liquid mixture of two or more materials beaten together to be used in cooking or baking.

16. **Bay leaves.**—Leaves of the cherry laurel. Much used in soups and stews and in pickling.

17. **Beef extract.**—This is really a concentrated beef stock, extracted by boiling beef under pressure. It contains very little nutritive matter—much less than is found in an equivalent weight of beef. It is of especial value on account of the ease and speed

with which it may become absorbed into the circulation. It holds an important place in the diet of the sick and convalescent.

18. **Beef juice.**—The liquid remaining in fresh beef after it is properly prepared for consumption, the blood having been removed. The juice may be removed by pressure, or by cutting into small pieces and placing in cold water. The juice having been drawn out, the water is evaporated. Much of the so-called beef juice on the market is said to be prepared from the blood of slaughtered animals.

19. **Beef tea.**—This is really unfiltered beef stock. Instead of constantly skimming the surface of the stock, the coagulated albumen is allowed to remain. It should be made of the best meat. One-half pound of good beef tea may be made from 1 pound of meat and 1 quart of water. It has little real nutritive value, but, like the beef extract, is a light stimulant.

20. **Bench.**—A molding table.

21. **Bisk (or bisque).**—A shellfish soup.

22. **Blanch.**—To scald vegetables, nuts, etc., in order to remove the outside skins or hulls.

23. **Blood heat.**—The normal temperature of the human body, 98° F.

24. **Boiling.**—The conversion of a liquid into steam by the application of sufficient heat to cause ebullition or disturbance of the surface. As applied to cooking, it is heating or cooking in a boiling liquid. (See Methods of Cooking.)

Water boils at 212° F. at the sea level. It simmers when the bubbles break beneath the surface—185° F. It is scalding hot at 150° F., or at a temperature such that the hand can not be borne in it. Salt water boils at 224° F. Other solids, as, for example, sugar, also raise the boiling point of water. A solution having reached the boiling point, the temperature can not be increased by any amount of additional heat, except under pressure, as would result from boiling in a closed vessel.

Lard smokes at 385° F. and boils at about 600° F. Hence it is evident that grease, even if not at the smoking or boiling point, may be much hotter than boiling water, a fact that should always be borne in mind in handling it and in cooking.

25. **Bouillon.**—A clear meat broth or soup rich in extractives.

26. **Brains.**—The brains of most slaughtered animals are used for food and are considered a luxury. Calves' brains are considered

the best, although there is but little difference, and all brains are generally sold under this name.

27. **Braising.**—Method of combining the roasting and stewing of meat in a closed vessel with heat from both top and bottom, as in a Dutch oven. It is one of the best methods of cooking tough, lean meat. If the kettle is placed in a slow oven, it requires little further attention.

28. **Broiling.**—Properly speaking, it is cooking over red-hot coals by direct exposure to the heat of an open fire, though the term is applied to cooking on an iron plate interposed between the fire and the article cooked. In broiling, the fire should be clear and free from smoke. Charcoal is the best fuel to use. It is better to broil before a fire than over it, in order to save the dripping grease and avoid the smoky flavor, though the smoke from the fat itself is not as objectionable as that from coal or wood.

29. **Calorie.**—Quantity of heat required to raise 1 kilogram of water 1° C. This is the equivalent of 1.54 foot tons. Food values are expressed in calories and the calories in the soldier's daily ration exceed 5,000.

30. **Capers.**—Unopened buds of a trailing shrub grown in southern Europe. Pickled and much uesd in sauces. Caper sauce is frequently served with mutton.

31. **Caramel.**—A sirup made from scorched sugar, used largely in coloring sauces, as well as in flavorings.

32. **Caraway seed.**—Seed of a garden herb. Grows like the seed of a carrot or parsnip. Used in various cakes and sweet crackers, in rye bread, and in liquors.

33. **Carbohydrates.**—Starches, sugars, and the fibers of plants. It is principally a source of energy. The surplus is stored in the body as fat.

34. **Casein.**—A proteid compound found principally in milk, of which it is the most important ingredient. When coagulated, it forms the principal ingredient in cheese.

35. **Casing.**—A term applied to the intestines of all animals. They are used to receive sausage, bologna, etc. The hog's stomach is actually used as a receptacle for his head when it is converted into head cheese.

36. **Cassia.**—Bark of a tree similar to cinnamon. Cultivated in China. Also called Chinese cinnamon.

37. **Celery salt.**—A mixture of ground celery seed and salt in the roportions in weight of two to one. Much used in salads and season-g.

38. **Centigrade.**—Graded to a scale of 100. On the centigrade ıermometer scale the freezing point of water is 0 and the boiling oint 100.

39. **Chervil.**—A garden herb much used in soups.

40. **Chicory.**—A perennial herb of the astor family, with heads of rge bright-blue flowers and dandelion-like roots. The roasted and ılverized root is used in adulterating coffee and as a substitute for it. grains of coffee containing chicory are dropped into cold water, e chicory will settle at once and be followed by a cloudy streak.

41. **Chili.**—Red sweet pepper. *Chili powder* contains chili, gar-, comina, and oregano.

42. **Chives.**—A kind of green onion. Tops are slender and pipe-ke. Much used in soups and sauces.

43. **Chocolate.**—A paste or cake made from the cocoa bean before ıy of the fat has been extracted.

44. **Chowder.**—A dish of stewed, fresh, or salt fish or clams, with egetables and crackers added.

45. **Chutney.**—An East Indian sweet pickle.

46. **Cinnamon.**—The inner bark of the cinnamon or cassia tree. rown in Ceylon and used as a spice.

47. **Citron.**—Large coarse fruit of the lemon family. Used in incemeat and preserves.

48. **Cloves.**—Flower buds of the clove tree carefully picked and ied. Should always be purchased whole, as they deteriorate rapidly hen ground.

49. **Cochineal.**—Coloring matter made from the dried bodies of ıall insects found in the southwestern part of the United States, in exico, and in Central America. It is harmless.

50. **Cocoa.**—Similar to chocolate, but not as rich. It is ground om the cocoa bean after much of the fat has been pressed out.

51. **Comina.**—An herb found in the southwestern part of the nited States and in Mexico. Much used in seasoning soups and ews.

52. **Compound.**—A substitute for lard, commonly used in bakeries, about the following composition: Seventy-five per cent cottonseed l, 25 per cent beef stearin. The results obtained are about the same

as when using lard, and its use in company kitchens is recommended for economy.

53. **Condiment.**—Something to give relish to the food and gratify the taste. General term for seasoning.

54. **Cracklings.**—The crisp residue of hog fat after the lard has been tried out. It may be used in hash or corn bread, but is valuable only in proportion to the amount of fat that is left in it.

55. **Crackling bread.**—Corn bread to which cracklings have been added.

56. **Cream bread.**—Bread baked in superheated steam, as when moisture is artificially introduced into an oven, or the bread baked under inverted pans, giving a very thin crust and a light color.

57. **Croquettes.**—A mass of finely minced and seasoned meat, fish, rice, or potatoes, etc., made into a ball or other regular shape, rolled in cracker crumbs and fried in deep lard until crisp.

58. **Croutons.**—Cubes of toasted bread. Generally served with soup.

59. **Crullers.**—Small cakes made from a sweet dough mixture and fried in deep lard. They may be made with either baking powder or yeast.

60. **Crumb.**—The soft inner part of the loaf, as distinguished from the crust.

61. **Curry powder.**—A yellow powder formed by a mixture of numerous hot peppers and ginger. Used as a high seasoning for stews, etc.

62. **Cutlets.**—Term usually applied to the rib cuts of pork, mutton, lamb, veal, venison, etc., but not of beef.

63. **Deviled.**—Highly seasoned.

64. **Deviled meat.**—Cooked meat, finely ground and highly seasoned.

65. **Dough.**—Technically, the mixture resulting from breaking up a sponge and adding the remainder of the flour and other ingredients to be used in making bread. The term is also applied to the resulting mixture in any subsequent stage, and sometimes to any mixture in which flour forms the greater part.

Young or *green dough.*—One not fully matured, or not yet risen to its maximum height in proving.

Ripe dough.—One that has fully matured.

Old and *rotten dough.*—One that has been allowed to stand longer than the normal length of time, so that it begins to show signs of sourness. In pulling a portion from the general mass, it will tear more readily than usual, on account of the gluten having become weakened by the actions of acids upon it.

Sour dough.—Generally one containing a large percentage of acid, on account of being allowed to ferment without the introduction of yeast. A sour dough may also result from unclean utensils, from proving in too high a temperature, from too long fermentation, or from yeast containing acid germs.

66. **Dough break.**—A dough kneading machine with corrugated rollers.

67. **Doughnuts.**—Small cakes made from a dough mixture and fried in deep lard. They may be made with either baking powder or yeast.

68. **Dredge.**—To sprinkle, as with pepper and salt, or rub in, as with flour, etc.

69. **Dumplings.**—Pieces of dough, sometimes with fruit or vegetables inclosed, boiled or baked. If to be served with meats or stews, the pieces of dough should be dropped into the boiling hot beef stock or stew about eight minutes before being served.

70. **Eggs.**—For domestic purposes eggs should be kept in a cool, dark place, the nearer to the freezing point the better. However, changes are constantly taking place within the egg, producing a certain amount of heat, and, partly for this reason, eggs will stand a temperature somewhat lower than freezing.

The porous nature of the shell facilitates decomposition, and eggs dipped in varnish or other solution (e. g., silicate of soda) that will permanently fill the pores, will keep much longer than others. Even "cold-storage eggs" should not be kept longer than six weeks. They are, however, often kept for a period of six months, or even more, but during this time they acquire a distinctly unpleasant odor and flavor. Eggs kept for a long time in cold storage, or decayed in any way, are extremely injurious.

71. **Entrée.**—Small meats made in various guises, with sauces and garnishings, served between courses or at the beginning of a dinner.

72. **Estragon or tarragon.**—A garden herb used to flavor vinegar, soups, sauces, etc.

73. **Extractives.**—The principal ingredient of beef extract, beef tea, etc. They act as stimulants and appetizers but have little or no nutritive value.

74. **Fahrenheit.**—The thermometer scale commonly used in the United States and Great Britain, on which 32 marks the freezing point of water and 212 the boiling point.

75. **Farina.**—A fine flour or meal made from cereal grains or from the starch of vegetables. Some forms especially prepared for breakfast foods.

76. **Fennel.**—A garden plant much cultivated in England. Grows wild in Florida. Used to flavor mackerel and salmon.

77. **Ferment.**—A substance capable of producing yeast fermentation.

78. **Fillet.**—A strip of lean meat without bone.

79. **Fillet of beef.**—The tenderloin muscle, which lies beneath the backbone in the hind quarter. It is easily detached, and is used in steaks, and less frequently in roasts.

80. **Fillet of fowl.**—The breast.

81. **Fillet of pork or mutton.**—A strip from the shoulder to the hip on either side of the backbone.

82. **Fillet of rabbit.**—Fleshy parts of the back and legs.

83. **Fillet of veal.**—Pieces of the round, generally larded, stuffed, coiled and skewed into a round shape.

84. **Force meat.**—The various mixtures used to stuff fowl, fish, tomatoes, etc. Some force meats are composed of minced veal and bacon with herbs and seasonings, or pounded chicken breasts with bread crumbs, butter, yolks, etc.

85. **Frappé.**—A term given to water ices that have been only partly frozen. It is an iced drink and the name should not be given to a thick custard cream.

86. **Fricassee.**—A dish of meat, as of fowl, cut into pieces, fried until partially done, and stewed in gravy.

87. **Fried cakes.**—Domestic term for doughnuts or crullers. A general term applied to batter cakes, potato cakes, etc.

88. **Fritters.**—A small quantity of batter usually inclosing or containing some other substances and fried in deep lard, e. g., corn fritters, apple fritters, etc.

89. **Garlic.**—A bulb like an onion, with a strong characteristic smell and pungent taste. A clove of garlic means one of the natural

subdivisions of the bulb. A favorite condiment of the people of southern Europe and of the Orient. It is much used in company cooking to "bring out" the flavor of other seasonings.

90. **Garnish.**—To decorate a dish with something to make it more attractive, such as bordering salads with capers, parsley, beets, or lemons.

91. **Gelatin.**—Glutinous material obtained from animal tissues after long boiling. It readily dissolves in hot water, and forms a jelly upon cooling. While in the liquid state it may be given any flavor desired. It makes an excellent cheap summer dessert. Easily digested and much used in the sick room. Not of great nutritive value.

92. **Gems or muffins.**—Hot breads made from white flour, Graham, or corn meal, and baked in gem pans.

93. **Germ.**—The earliest stage in the growth of an animal or plant. Also applied to minute organisms which do or do not cause disease.

94. **Giblets.**—Liver, gizzard, heart, neck, feet, wings, etc., of poultry as used in pies, stews, and sauces.

95. **Ginger.**—The root of a reedlike plant. The common brown root is the natural state. *Jamaica ginger* is made from the same root, from which the outer surface has been removed.

96. **Glacé.**—Icing.

97. **Glucose.**—A cheap sugar that will not easily crystallize or a cheap sirup that will not crystallize—very much like "Silver Drip," but much thicker. Glucose is often made by treating corn meal with sulphuric acid. It is very wholesome.

98. **Gluten.**—The muscle-building element of wheat, rye, and other grains. The strength of flour and the toughness and tenacity of dough are determined by the quantity and quality of the gluten present.

99. **Graham flour.**—Unbolted flour or white flour mixed with bran and shorts.

100. **Grilled.**—Broiled.

101. **Grits.**—Grains, as of wheat, corn, or oats, coarsely ground.

102. **Gruel.**—Liquid food made by boiling meal or flour in water or milk.

103. **Ham.**—Properly speaking, it is the thigh of an animal, but the "ham" of the hog is prepared from either the thigh or shoulder.

104. **Ham butts.**—Part of the hog corresponding very closely to the chuck of the beef; it is a portion of the shoulder directly above that used in preparing "shoulder hams."

105. **Hominy.**—Cracked Indian corn from which the outer husk has been removed.

106. **Hops.**—Used in the preparation of yeast, not as a food for the yeast plant but to prevent sourness.

107. **Ice.**—A general term frequently applied to frozen creams, custards, and other desserts, as well as to water ices. The latter are fruit juices sweetened with sugar sirup and stirred while freezing.

108. **Icing.**—A glazing or coating of sugar usually mixed with white of egg and suitable flavoring, as on a cake; frosting.

109. **Jam.**—A preserve of fruit boiled with sugar and water.

110. **Jelly.**—The juice of fruits or meats boiled to an elastic consistence. In making fruit jellies, sugar and suitable flavor are added.

111. **Kidneys** from all slaughtered animals are used in stews, etc. There is not any great demand for them in American markets, but great quantities are shipped abroad. Pig's kidneys are considered the best.

112. **Lamb chops.**—The short ribs of lamb with the attached flesh.

113. **Lard.**—The fat of swine. It is frequently adulterated by the addition of a large proportion of cottonseed oil. Pure cottonseed oil, to which stearin is added, makes a fairly good substitute. In addition, lard and cottonseed-oil compounds are frequently further adulterated by the addition of water, the presence of which is noted by the crackling and sputtering when placed in the spider, or when a small lump is dropped into the fire. Watered lard is unnaturally white. Good firm lard is the best for pastries, although refined oil and "lard compounds" do for most purposes.

114. **Lard.**—To introduce thin pieces of pork, ham, or bacon into meats deficient in fat to improve the flavor.

115. **Leaf lard.**—This consists of the leaves of fat along the backbone of the hog, in the abdominal cavity. It may be torn out without cutting. It is the best quality of lard and may be used in many instances without rendering if desired. The next best quality of lard is that which is found connected with the intestines, called "intestinal lard," and the third quality comes from the back of the hog.

116. **Leaven.**—A piece of old dough used as a ferment in making bread.

117. **Leek.**—A species of onion, the leaves of which are flat instead of round. Much used in soups.

118. **Lentils.**—A variety of bean used in making soup.

119. **Lights.**—The lungs of slaughtered animals. Used to some extent in cheap sausage.

120. **Liver.**—Calves' livers are considered the best. Beef liver is second best, and pigs' liver third. The liver of mutton is very dry and tasteless.

121. **Macaroni.**—A strong flour made into a stiff dough, pressed into long tubes, and dried in the sun or by slow heat. *Spaghetti* is of the same material, but is pressed into the form of long cords. *Vermicelli* is the same as fine cord spaghetti.

122. **Mace.**—The inner coating of the nutmeg. It is a good flavoring for meats, cream soups, puddings, and sweets.

123. **Malt.**—Barley or other grain that has been allowed to sprout, then dried at a low temperature and coarsely ground. Useful in making yeast, as it furnishes food for the yeast plant in the best form possible.

124. **Marjoram.**—A mintlike plant, particularly aromatic and fragrant. Much used in seasonings.

125. **Marrow.**—The material filling the hollow of bones. The beef marrow found in the shin bone of cattle is an excellent fat. In packing houses it is extracted and sold on the market for shortening.

126. **Mayonnaise.**—A sauce for salads, prepared from the yolks of eggs, with mustard, olive oil, lemon, salt, etc., added.

127. **Meringue.**—A kind of icing made from the whites of eggs, with sugar sprinkled over the top when ready for baking. The sugar being next to the heat, quickly turns a delicate brown and adds rich appearance to the pies or other pastry in which used.

128. **Mint.**—An aromatic herb used in cooking. *Mint sauce.*—Chopped green mint, vinegar, and sugar mixed. Served with mutton, either hot or cold.

129. **Mousse.**—Froth. Something light and spongy. Term applied both to meat preparations and ice cream.

130. **Mulligatawny.**—Curry soup (combination of two words from a foreign language, meaning pepper water).

131. **Mustard.**—Flour made of mixed black and white mustard seeds, deprived of their oil and toned down with more or less meal.

132. **Noodles.**—Practically the same material as macaroni and spaghetti. (See par. 121.)

133. **Nasturtium.**—Well-known garden plant. The green seeds are pickled as a substitute for capers.

134. **Nutmeg.**—Kernel of the fruit of the nutmeg tree. Much used in desserts, etc.

135. **Oleomargarine.**—A term adopted by the Department of Agriculture to designate all kinds of artificial butter.

136. **Olein.**—Olein is that portion of oil or fat which gives it fluidity. Fat contains more of it than lard, and lard more than suet. Contrast with stearin.

137. **Oregano.**—An herb much used in seasoning soups and stews.

138. **Oseille or sorrel.**—A green herb used as greens and in soup.

139. **Oven, quick.**—One heated to a higher temperature than normal—above 385° F. An oven of less than 12 counts.

140. **Oven, slow.**—One heated to less than the normal temperature for baking—below 385° F. An oven of more than 15 counts.

141. **Oyster plant (salsify).**—A white root with the taste of an oyster. Best in the spring of the year after the frost is out of the ground. It is generally left in the ground over winter.

142. **Pancreas.**—A gland from near the stomach of slaughtered animals used as a sweetbread.

143. **Parboil.**—To cook partly by boiling.

144. **Parsley.**—A green herb much used for garnishing and in flavoring soups, stews, croquettes, etc.

145. **Patties.**—There are two distinct kinds of patties. First, a puff paste shell baked and afterwards filled; second, small pies made by lining patty pans with short paste, filling with oysters, chicken, etc., covered with a top crust and baked.

146. **Pepper.**—The *white pepper* is made from the ripe seeds, and the *black pepper* from seeds picked before they are ripe. White pepper is much better for cooking purposes, as it does not show the dark specks. Black pepper is preferred for flavoring, especially in dishes that are to be strained afterwards. Pepper is much subject to adulteration and whole pepper should be purchased and ground at home.

147. **Pepper, cayenne.**—Red pepper pods and seeds ground. Often adulterated with yellow cornmeal, mustard hulls, etc.

148. **Piccalilli.**—The same as chow chow. Green tomatoes, onions, cucumbers, celery, etc., finely chopped with vinegar added and highly seasoned.

149. **Pistachio.**—A pale greenish nut resembling the almond. Much used as a coloring matter for ice creams and confections. It has a fine flavor. A deeper green is obtained by the addition of spinach.

150. **Poach.**—To cook in a small amount of water or milk. A term generally applied to eggs.

151. **Porridge.**—A gruel.

152. **Protein.**—The muscle producing compound found in meats, eggs, cereals, etc.

153. **Proving.**—A gradual rising or expansion of a dough or sponge, due to the formation of carbonic gas incident to the growth of the yeast.

154. **Pyrometer.**—An instrument for measuring high degree of heat, usually operated by the expansion or contraction of a metal spring. In our experience, they are not as accurate as the mercurial thermometers, and easily get out of order.

155. **Ragout.**—A highly seasoned meat stew. Liquor is frequently added.

156. **Rendering.**—The process of separating the lard or beef fat from the tissue in which it is found.

157. **Roasting.**—Cooking before an open fire. Term also applied to baking in a dry oven chamber, with free circulation. Certain flavors are developed in roasting before an open fire that are closely approximated in a well-ventilated oven, but not approached in a closed oven.

158. **Saccharin.**—A white, sweetening substance (powder) obtained from coal tar and said to possess three hundred times the sweetening power of sugar. It possesses certain antiseptic qualities and is a powerful antiferment. It contains no nutriment and is little used as a seasoning. Formerly used in tablet form with the Army standard emergency ration for sweetening coffee.

159. **Saffron.**—The petals of a flowering plant of a deep orange color. Made into a tea and added to dough, or stew, etc.

160. **Sage.**—A plant with grayish green leaves and much used in seasoning meats and stews.

161. **Sago.**—It is made from the pith of a palm tree which grows in the East Indies. It is nearly pure starch and has many imitations on the market, but the form of the grain of the latter disappears in cooking. It is cooked in the same way as tapioca and is also much used in soups.

162. **Salsify.**—(See par. 141.)

163. **Sausage.**—There are from 50 to 60 different kinds of sausages put up in the packing houses, the components, quality, and seasoning differing to meet the requirements of foreign and domestic trade. In the course of preparation, they are generally subjected to the smoke from hickory or other hard wood, and then cooked in vats of water at a temperature of about 160°, from 10 minutes for *frankfurters* to 3 hours for *bung sausages*.

Summer sausages are first smoked and then placed in a drying temperature for about three months. The material put into sausages compares favorably with that put on the market in other forms.

Bull meat is used to considerable extent, as it takes up more moisture than other meats.

The best *pork sausage* contains no beef.

Liver sausage is one of the cheapest and contains lungs (lights) as well as liver and other ingredients not put into better grades.

A good quality may contain from one-third to one-half of beef, and for Army sausage, this is an ordinary proportion.

164. **Sauté.**—To fry in a shallow pan with but a little fat—first on one side and then on the other.

165. **Scald.**—As applied to flour, potatoes, etc., to submerge or wet with water at a temperature of 160° F. or more—sufficiently hot to dissolve the bands of the starch cells and expose the individual grains composing it generally to the action of the yeast plant.

To scald utensils, etc.; to dash over with boiling water.

166. **Scallop.**—A mollusk similar to an oyster. The shell is corrugated and radiates from the center. *Scalloped dishes.*—Dishes made in the form of a scallop shell.

167. **Scalloped oysters.**—Oysters baked in scalloped dishes and rolled in cracker or bread crumbs and baked.

168. **Sherbet.**—A water ice made from the juice of fruit, diluted, sweetened, flavored, and frozen. Liquors are sometimes added.

169. **Shortening.**—Lard, butter, suet, marrow, etc., mixed in pastries to make them more friable and more easy to crumble.

170. **Slaw.**—Sliced cabbage with vinegar, salt, and pepper, served cooked (hot or cold) or raw.

171. **Soda.**—A white alkaline compound (sodium bicarbonate), consisting of white powder or dry, transparent crystals. Sometimes used to neutralize acids found in sour dough; also used to manufacture baking powder or alone in the preparation of certain mixtures in the kitchen.

172. **Soufflé.**—A side dish served hot from the oven, made of beaten eggs, flour, etc.

173. **Soy.**—A bottled sauce obtained from China and India. Composition uncertain.

174. **Spaghetti.**—(See par. 121.)

175. **Spare ribs.**—Ribs of pork with but little flesh attached.

176. **Sponge.**—A thick batter or soft dough, made from flour, water, and yeast. It is the first step in the process of bread making. A sponge is said to be *green* or *young* before it has fully matured; *ripe* when it has matured and is ready to be broken up preparatory to making the dough; and *old* or *rotten* when it has passed the ripe stage, and having risen and fallen more than once, probably contains a relatively high percentage of acid, making it sour.

177. **Stale bread.**—Bread in which all free moisture has so combined with the crumb as to give it the appearance of dryness. This takes place when the bread is from 18 to 24 hours old.

178. **Starch.**—A white, odorless, tasteless, flourlike compound, insoluble in cold water, alcohol, and other liquids. Found in all grains and seeds of plants, with but few exceptions. It is readily transformed into sugar compounds.

179. **Stearin.**—That portion of fats, lard, suet, etc., that gives it solidity.

180. **Sterilize.**—To destroy harmless or disease-bearing bacteria. Generally accomplished in the utensils used in the kitchen by the use of boiling hot water to which lye is sometimes added. The sterilizing of all utensils used in handling yeasts and doughs is absolutely necessary in order to prevent souring.

181. **Stock.**—The liquid or jelly obtained by boiling meat, bones, etc., for several hours in water. It is the basis of all good soups.

182. **Succotash.**—Green corn and beans boiled together.

183. **Suet.**—The large folds of fat found attached to the inner walls of the hind quarters of beef.

184. **Sweetbreads.**—The thymus gland (found in the neck of slaughtered animals) and the pancreas (found near the stomach). They have very little natural flavor, but are very tender and considered a delicacy. Those from the calf are the best, the next are from the beef, sheep, and hog, in the order named.

185. **Tallow.**—Properly speaking, it is the fat of beef, sheep, or other animals, from which a portion of the oil has been extracted, making it harder than the natural fat.

186. **Tapioca.**—A starch extracted from a South American plant. Used in puddings. Very similar to *sago* and *arrow root*.

187. **Thyme.**—An herb used in seasoning.

188. **Thymus gland.**—A gland of the neck of slaughtered animals used as sweet bread.

189. **Tripe.**—A term applied to the stomach of the beef after being cleaned and boiled. It has but little flavor, but is considered by many as a very valuable food. It is very easily digested.

190. **Vinegar.**—The sour liquid formed by the spontaneous acetic fermentation or artificial oxidation of beer, wine, cider, etc.

191. **Yeast.**—Yeast grows in small spores that reproduce themselves every four of five hours. The spore is found everywhere floating about in the air, and wherever the proper condition of food, moisture, and warmth are found it grows spontaneously. While in a dry state it is unaffected by the ordinary temperature, though freezing or a temperature above 160° F. will kill it in the liquid state. While it "works" or grows it evolves a carbonic gas which gives to the dough a cellular structure. While proving, the dough should be kept in an even temperature of about 80°, and this should be about the average temperature of the dough and ingredients when mixed together.

CHAPTER II.

THE GARRISON RATION.

192. **A ration** is the allowance for the subsistence of one person for one day. The *garrison ration* is intended for troops in garrison, and, in time of peace, for troops in maneuver camps; the *ration* to be issued to troops on the march in time of peace will be prescribed by the commander, and will not exceed the allowance prescribed for the garrison ration; the *travel ration* is for troops traveling otherwise than by marching and separated from cooking facilties; the *reserve ration* is carried on the person of the men and in the trains, and constitutes the reserve for field service; the *field ration* is the ration prescribed in orders by the commander of the field forces; the *Filipino ration* is for use of the Philippine Scouts; and the *emergency ration* for troops in active campaign for use on occasions of emergency or in the field for purposes of instruction.

In time of war when Philippine Scouts are serving in the field they will be subsisted the same as are Regular troops. When impracticable for Philippine Scouts to use the Filipino ration while traveling otherwise than by marching, on account of the lack of cooking facilities or for other reasons, the travel ration may be prescribed.

The kinds and quantities of the component articles of the Army ration and the substitutive equivalent articles which may be issued in place of such component shall be as follows:

1. GARRISON RATION.

Component—		Substitutive—	
Articles.	Quantities.	Articles.	Quantities.
	Ounces.		*Ounces.*
Beef, fresh	20	Mutton, fresh	20
		Bacon[1]	12
		Canned meat, when impracticable to furnish fresh meat.	16

[1] In Alaska, 16 ounces of bacon or, when desired, 16 ounces salt pork or 22 ounces salt beef.

1. GARRISON RATION—Continued.

Component—		Substitutive—	
Articles.	Quantities.	Articles.	Quantities.
	Ounces.		*Ounces.*
Beef, fresh (Con.)		Hash, corned-beef, when impracticable to furnish fresh meat.	16
		Fish, dried	14
		Fish, pickled	18
		Fish, canned	16
		Turkey, dressed, drawn, on Thanksgiving Day and Christmas, when practicable.	16
Flour	18	Soft bread	18
		Hard bread, to be ordered, issued only when the interests of the Government so require.	16
		Corn meal	20
Baking powder	.08		
Beans	2.4	Rice	1.6
		Hominy	1.6
Potatoes [1]	20	Potatoes, canned	15
		Onions, in lieu of an equal quantity of potatoes, but not exceeding 20 per cent of total issue.	
		Tomatoes, canned, in lieu of an equal quantity of potatoes, but not exceeding 20 per cent of the total issue.	
		Other fresh vegetables (not canned) when they can be obtained in the vicinity or transported in a wholesome condition from a distance, in lieu of an equal quantity of potatoes, but not exceeding 30 per cent of total issue.	
Prunes	1.28	Apples, dried or evaporated	1.28
		Peaches, dried or evaporated	1.28
		Jam, in lieu of an equal quantity of prunes, but not exceeding 50 per cent of total issue.	

[1] In Alaska the allowance of fresh vegetables will be 24 ounces instead of 20 ounces, or canned potatoes, 18 ounces instead of 15 ounces.

1. GARRISON RATION—Continued.

Component—		Substitutive—	
Articles.	Quantities.	Articles.	Quantities.
	Ounces.		*Ounces.*
Coffee, roasted and ground.	1.12	Coffee, roasted, not ground	1.12
		Coffee, green	1.4
		Tea, black or green	.32
Sugar	3.2		
Milk, evaporated, unsweetened.	.5		
Vinegar	[2].16	Pickles, cucumber, in lieu of an equal quantity of vinegar, but not exceeding 50 per cent of total issue.	
Salt	.64		
Pepper, black	.04		
Cinnamon	.014	Cloves	.014
		Ginger	.014
		Nutmeg	.014
Lard	.64	Lard substitute	.64
Butter	.5	Oleomargarine	.5
Sirup	[1].32		
Flavoring extract, lemon.	.014	Vanilla	.014

[1] Gill.

NOTE.—Food for troops traveling on United States Army transports will be prepared from the articles of subsistence stores which compose the ration for troops in garrison, varied by the substitution of other articles of authorized subsistence stores, the total daily cost per man of the food consumed not to exceed 20 per cent more than the current cost of the garrison ration, except on Thanksgiving Day and Christmas, when 60 per cent increase over the same current cost is authorized.

2. TRAVEL RATION.

Component—		Substitutive—	
Articles.	Quantities.	Articles.	Quantities.
	Ounces.		*Ounces.*
Soft bread	18	Hard bread	16
Beef, corned	12	Hash, corned-beef	12
Beans, baked	4		
Tomatoes, canned	8		
Jam	1.4		
Coffee, roasted and ground.	1.12		
Sugar	2.4		
Milk, evaporated, unsweetened.	.5		

3. RESERVE RATION.

Bacon	12		
Or meat, canned	16		
Hard bread	16		
Coffee, roasted and ground.	1.12		
Sugar	2.4		
Salt	.16		

One day in each alternate month of the season of practical instruction, not exceeding three days in each year, the use of the reserve ration with individual cooking will be required by all troops in the field for purpose of instruction.

4. FIELD RATION.

The field ration is the ration prescribed in orders by the commander of the field forces. It consists of the reserve ration in whole or in part, supplemented by articles of food requisitioned or pur-

chased locally, or shipped from the rear, provided such supplements or substitutes correspond generally with the component articles or substitutive equivalents of the garrison ration.

5. FILIPINO RATION.

Component—		Substitutive—	
Articles.	Quantities.	Articles.	Quantities.
	Ounces.		*Ounces.*
Beef, fresh	12	Bacon	8
		Canned meat	8
		Fish, canned	12
		Fish, fresh	12
Flour	8	Hard bread	8
		Soft bread	8
Baking powder, when in field and ovens are not available.	.32		
Rice, unpolished	20		
Potatoes	8	Onions	8
Coffee, roasted and ground.	1		
Sugar	2		
Vinegar	[1].08		
Salt	.64		
Pepper, black	.02		

[1] Gill.

Scout organizations will be required to use the entire allowance of the meat component, and not more than 16 ounces of rice per day to be used for each ration. The purchase of 1.6 ounces of beans per ration in substitution of the portion of the rice ration not drawn will be made, and use of as large an extent as possible of native products, such as camotes, mongos, and squash, will be required.

6. EMERGENCY RATION.

The emergency ration is furnished, in addition to the regular ration, as required for troops on active campaign or in the field for purposes of instruction, and will not be opened except by order of an officer or in extremity, nor used when regular rations are obtainable.

Ration returns upon which emergency rations are drawn will bear the certificate of the organization commander that such rations are required for the enlisted men of his organization and that the money value of any rations previously drawn by him, and improperly opened or lost, has been charged against the person responsible.

Company and detachment commanders are responsible for the proper care and use of emergency rations carried on the person of the soldier.

All articles of the garrison, travel, or Filipino ration due a company or other organization will be retained by the quartermaster and credit given to the organization for the money value of these articles at the current price of the articles, and the quartermaster will pay as savings to the organization commanders any excess in value of the stores so retained over those purchased by the organization. Such savings shall be used solely for the purchase of articles of food.

When on the march in time of peace a daily issue of rations will be made in the manner prescribed in the Field Service Regulations for the time of war. The ration to be issued to troops on the march in time of peace will be prescribed by the commander, and will not exceed the allowances prescribed for the garrison ration.

In time of peace the ration savings privilege will be suspended for troops on the march, except that when so ordered by the commander the savings privilege will be allowed on certain specified articles of the ration.

Upon arrival of troops at mobilization or concentration camps the ration savings privilege will be suspended and entirely replaced by issue of rations in kind. This same restriction also applies during the period of field operations.

The commanding officer will designate the periods for which ration returns are to be submitted. Immediately upon the receipt

of a ration return by the quartermaster duly signed and approved he will enter it, together with the actual cost of the ration as computed on the back of the ration and savings account. The stores required will be purchased from the quartermaster on charge sales slips, in the name of the organization, against their credit shown on the account. At the end of the month, or whenever necessary, the organization commander will settle the account with the quartermaster, when the savings due the organization, or the amount due the quartermaster, as the case may be, will be paid and the account certified as required.

All articles of the ration required for the supply of troops will be obtained from the quartermaster when on hand, but if any article be not in stock a temporary supply may be purchased elsewhere.

When necessary to renew reserve rations or to avoid loss of ration articles that have accumulated, the quartermaster will report the facts to the commanding general or the commanding officer, as the case may be, who, if he considers it necessary to prevent loss, will give in writing the necessary orders looking to the issue of such supplies to troops. Such issues will not exceed the ration allowance and will be continued until the surplus is exhausted or until such other action as may seem advisable can be taken to protect the interest of the Government.

193. **On account of the variation in the cost** of the ration in different localities, the ration and savings account should be settled upon departure from a post, to include the last day for which rations are taken. Upon arrival at a new station a new account is opened and credit given at the prevailing price at the new station, thus avoiding any pecuniary loss through having to purchase articles of the ration at prices higher than those upon which the credit allowance was computed.

RATION TABLES.

194. **The cash value** of the *garrison* and *travel ration* **is determined** by taking the percentages of the several components and substitutive articles as indicated below at the price current during the month:

Garrison ration.

Articles.	Unit.	Per cent.	Quantity per 100 rations.	Cents per unit.	Value of 100 rations.
Beef, fresh	Pound	70	87.5		
Bacon, issue	do	30	22.5		
Flour, issue	do	100	112.5		
Baking powder	No. ½ can	100	1.0		
Beans	Pound	50	7.5		
Rice	do	50	5.0		
Potatoes, fresh	do	70	87.5		
Onions, fresh	do	20	25.0		
Tomatoes, canned	Small can	10	6.25		
Do	No. 10 can	10	1.923		
Prunes	Pound	30	2.4		
Jam	No. 2 can	50	2.539		
Apples, evaporated	Pound	10	.8		
Peaches, evaporated	do	10	.8		
Coffee, roasted and ground	do	100	7.0		
Sugar	do	100	20.0		
Milk, evaporated	12-ounce can	100	4.166		
Do	16-ounce can	100	3.125		
Do	32-ounce can	100	1.5625		
Vinegar	Gallon	50	.25		
Pickles, cucumber	do	50	.25		
Salt	Pound	100	4.0		
Pepper, black	No. ¼ can	100	1.0		
Cinnamon	do	100	.35		
Lard, issue	Pound	50	2.0		
Lard substitute	do	50	2.0		
Butter	do	50	1.5625		
Oleomargarine	do	50	1.5625		
Sirup	Gallon	100	1.0		
Flavoring extract, lemon	2-ounce bottle	100	.7		
Do	8-ounce bottle	100	.175		
Cash value of 100 rations					
Cash value of 1 ration					

195. **After securing a price list** of ration articles from the quartermaster for the ensuing month, the mess sergeant should consult the preceding table in order to fix in his mind the quantities and value of the different ration articles he will make use of and the amounts he will leave to the credit of the organization.

He should make a saving on the *beef component* in order to purchase liver, hearts, fish, pork, chicken, etc.

From the savings on flour he should purchase prepared breakfast food and oatmeal.

From the savings on potatoes he should purchase cabbage, sweet potatoes, turnips, and fresh vegetables in season.

A proper use of the bean component will enable him to purchase lima beans and other varieties of beans, often cheaper than the issue bean.

The savings on prunes (dried fruit) may be used when the different fresh fruits are available to supply a change.

The stock on hand in the storeroom must be considered in order that the total on hand will not exceed the requirements for the period for which drawn.

The mess sergeant is able with ease to purchase quantities sufficient to run the mess for given periods without having an excess amount of stock on hand at the end of the ration period. This will often prevent his organization from being in debt after the inventory of subsistence stores near the end of the month.

196. **The preceding table** should be *memorized* by the mess sergeant and the cooks, in order that they may know the components on which the cash allowance is based. While under ordinary conditions in garrison or permanent camp the organization may be on the cash allowance, the regulations provide for an issue in kind while on the march or in the field.

197. **The following table** is of especial assistance to the mess sergeant when rations are issued in kind:

Number of rations.	Beef, fresh; mutton, fresh.	Bacon.	Beef, corned; beef, fresh roast; hash, corned beef; fish, canned; turkey, drawn.	Turkey, undrawn.	Fish, dried.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds*
1	1.25	0.75	1	1.18	0.
2	2.50	1.50	2	2.37	1.
3	3.75	2.25	3	3.56	2.
4	5.00	3.00	4	4.75	3.
5	6.25	3.75	5	5.93	4.
6	7.50	4.50	6	7.12	5.
7	8.75	5.25	7	8.31	6.
8	10.00	6.00	8	9.50	7.
9	11.25	6.75	9	10.68	7.
10	12.50	7.50	10	11.87	8.
20	25.00	15.00	20	23.75	17.
30	37.50	22.50	30	35.62	26.
40	50.00	30.00	40	47.50	35.
50	62.50	37.50	50	59.37	43.
60	75.00	45.00	60	71.25	52.
70	87.50	52.50	70	83.12	61.
80	100.00	60.00	80	95.00	70.
90	112.50	67.50	90	106.87	78.
100	125.00	75.00	100	118.75	87.
200	250.00	150.00	200	237.50	175.
300	375.00	225.00	300	305.62	262.
400	500.00	300.00	400	475.00	350.
500	625.00	375.00	500	593.75	437.
600	750.00	450.00	600	712.50	525.
700	875.00	525.00	700	831.25	612.
800	1,000.00	600.00	800	950.00	700.
900	1,125.00	675.00	900	1,068.75	787.
1,000	1,250.00	750.00	1,000	1,187.50	875.

Number of rations.	Fish, pickled.	Flour, soft bread.	Hard bread.	Corn meal.	Baking powder.	Beans.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Can.*	*Pounds.*
1	1.12	1.12	1	1.25	0.01	0.15
2	2.25	2.25	2	2.50	.02	.30
3	3.37	3.37	3	3.75	.03	.45
4	4.50	4.50	4	5.00	.04	.60
5	5.62	5.62	5	6.25	.05	.75
6	6.75	6.75	6	7.50	.06	.90
7	7.87	7.87	7	8.75	.07	1.05
8	9.00	9.00	8	10.00	.08	1.20
9	10.12	10.12	9	11.25	.09	1.35
0	11.25	11.25	10	12.50	.10	1.50
20	22.50	22.50	20	25.00	.20	3.00
30	33.75	33.75	30	37.50	.30	4.50
40	45.00	45.00	40	50.00	.40	6.00
50	56.25	56.25	50	62.50	.50	7.50
60	67.50	67.50	60	75.00	.60	9.00
70	78.75	78.75	70	87.50	.70	10.50
80	90.00	90.00	80	100.00	.80	12.00
90	101.25	101.25	90	112.50	.90	13.50
100	112.50	112.50	100	125.00	1.00	15.00
200	225.00	225.00	200	250.00	2.00	30.00
300	337.50	337.50	300	375.00	3.00	45.00
400	450.00	450.00	400	500.00	4.00	60.00
500	562.00	562.50	500	625.00	5.00	75.00
600	675.00	675.00	600	750.00	6.00	90.00
700	787.50	787.50	700	874.00	7.00	105.00
800	900.00	900.00	800	1,000.00	8.00	120.00
900	1,012.50	1,012.50	900	1,125.00	9.00	135.00
1,000	1,125.00	1,125.00	1,000	1,250.00	10.00	150.00

Number of rations.	Rice, hominy.	Potatoes, fresh; onions, fresh; other fresh vegetables.	Potatoes, canned.	Tomatoes, canned.	Prunes; apples, evaporated; peaches, evaporated.
	Pounds.	*Pounds.*	*30-ounce can.*	*Small can.*	*Pounds.*
1	0.1	1.25	0.5	0.62	0.08
2	.2	2.50	1.0	1.25	.16
3	.3	3.75	1.5	1.87	.24
4	.4	5.00	2.0	2.50	.32
5	.5	6.25	2.5	3.12	.40
6	.6	7.50	3.0	3.75	.48
7	.7	8.75	3.5	4.37	.56
8	.8	10.00	4.0	5.00	.64
9	.9	11.25	4.5	5.62	.72
10	1.0	12.50	5.0	6.25	.80
20	2.0	25.00	10.0	12.50	1.6
30	3.0	37.50	15.0	18.75	2.4
40	4.0	50.00	20.0	25.00	3.2
50	5.0	62.50	25.0	31.25	4.0
60	6.0	75.00	30.0	37.50	4.8
70	7.0	87.50	35.0	43.75	5.6
80	8.0	100.00	40.0	50.00	6.4
90	9.0	112.50	45.0	56.25	7.2
100	10.0	125.00	50.0	62.50	8.0
200	20.0	250.00	100.0	125.00	16.0
300	30.0	375.00	150.0	187.50	24.0
400	40.0	500.00	200.0	250.00	32.0
500	50.0	625.00	250.0	312.50	40.0
600	60.0	750.00	300.0	375.00	48.0
700	70.0	875.00	350.0	437.50	56.0
800	80.0	1,000.00	400.0	500.00	64.0
900	90.0	1,125.00	450.0	562.50	72.0
1,000	100.0	1,250.00	500.0	625.00	80.0

Number of rations.	Jam, blackberry.	Coffee, roasted; coffee, roasted and ground.	Coffee, green.	Tea.	Sugar.	Milk, evaporated.
	Can.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*1-pound can.*
1	0.05	0.07	0.087	0.02	0.2	0.03
2	.10	.14	.175	.04	.4	.06
3	.15	.21	.262	.06	.6	.09
4	.20	.28	.350	.08	.8	.12
5	.25	.35	.437	.10	.1	.16
6	.30	.42	.525	.12	1.2	.19
7	.36	.49	.612	.14	1.4	.22
8	.41	.56	.700	.16	1.6	.25
9	.46	.63	.787	.18	1.8	.28
10	.51	.70	.875	.20	2.0	.31
20	1.02	1.40	1.750	.40	4.0	.62
30	1.52	2.10	2.625	.60	6.0	.94
40	2.03	2.80	3.500	.80	8.0	1.25
50	2.54	3.50	4.375	1.00	10.0	1.56
60	3.05	4.20	5.250	1.20	12.0	1.87
70	3.56	4.90	6.125	1.40	14.0	2.19
80	4.06	5.60	7.000	1.60	16.0	2.50
90	4.57	6.30	7.875	1.80	18.0	2.81
100	5.08	7.00	8.750	2.00	20.0	3.12
200	10.16	14.00	17.500	4.00	40.0	6.25
300	15.24	21.00	26.250	6.00	60.0	9.37
400	20.32	28.00	35.000	8.00	80.0	12.50
500	25.40	35.00	43.75	10.00	100.0	15.62
600	30.47	42.00	52.50	12.00	120.0	18.75
700	35.56	49.00	61.25	14.00	140.0	21.87
800	40.63	56.00	70.00	16.00	160.0	25.00
900	45.71	63.00	78.75	18.00	180.0	28.12
1,000	50.79	70.00	87.50	20.00	200.0	31.25

Number of rations.	Vinegar, pickles, cucumbers.	Salt.	Pepper.	Cinnamon, cloves, ginger.	Nutmegs.	Lard, or lard substitute.
	Gallons.	*Pounds.*	*No. ¼ can.*	*No. ¼ can.*	*Ounces.*	*Pounds.*
1	0.005	0.04	0.01	0.003	0.01	0.04
2	.010	.08	.02	.007	.02	.08
3	.015	.12	.03	.010	.04	.12
4	.020	.16	.04	.014	.05	.16
5	.025	.20	.05	.017	.07	.20
6	.030	.24	.06	.021	.08	.24
7	.035	.28	.07	.024	.09	.28
8	.040	.32	.08	.028	.11	.32
9	.045	.36	.09	.031	.12	.36
10	.05	.40	.10	.035	.14	.40
20	.10	.80	.20	.070	.28	.80
30	.15	1.20	.30	.100	.42	1.20
40	.20	1.60	.40	.140	.56	1.60
50	.25	2.00	.50	.170	.70	2.00
60	.30	2.40	.60	.210	.84	2.40
70	.35	2.80	.70	.240	.98	2.80
80	.40	3.20	.80	.280	1.10	3.20
90	.45	3.60	.90	.310	1.20	3.60
100	.50	4.00	1.00	.350	1.40	4.00
200	1.00	8.00	2.00	.700	2.80	8.00
300	1.50	12.00	3.00	1.050	4.20	12.00
400	2.00	16.00	4.00	1.400	5.60	16.00
500	2.50	20.00	5.00	1.750	7.03	20.00
600	3.00	24.00	6.00	2.100	8.40	24.00
700	3.50	28.00	7.00	2.450	9.80	28.00
800	4.00	32.00	8.00	2.800	11.20	32.00
900	4.50	36.00	9.00	3.150	12.60	36.00
1,000	5.00	40.00	10.00	3.500	14.00	40.00

Number of rations.	Butter, oleo-margarine.	Sirup.	Flavoring extract.
	Pounds.	*Gallons.*	*2-ounce bottle.*
1	0.03	0.01	0.007
2	.06	.02	.014
3	.09	.03	.021
4	.12	.04	.028
5	.16	.05	.035
6	.19	.06	.042
7	.22	.07	.049
8	.25	.08	.05
9	.28	.09	.06
10	.31	.1	.07
20	.62	.2	.14
30	.94	.3	.21
40	1.25	.4	.28
50	1.56	.5	.35
60	1.87	.6	.42
70	2.19	.7	.49
80	2.50	.8	.56
90	2.81	.9	.63
100	3.12	1.0	.7
200	6.25	2.0	1.4
300	9.37	3.0	2.1
400	12.50	4.0	2.8
500	15.62	5.0	3.5
600	18.75	6.0	4.2
700	21.87	7.0	4.9
800	25.00	8.0	5.6
900	28.12	9.0	6.3
1,000	31.25	10.0	7.0

HOW TO KEEP WITHIN THE LIMITS OF THE CREDIT ALLOWANCE OF THE GARRISON RATION DAY BY DAY.

198. Due to the fact that the monthly inventory of subsistence stores is taken at any time from the 23d to the 27th of the month, it is almost impossible for the organization commander to keep an accurate check on his ration allowance. For example, the date of this inventory may vary one day in an organization of 100 men,

increasing or diminishing by about $25 the cash credit of the organization for that month.

The ration return is usually submitted on the first day of each month, based on the strength of the organization as shown by the morning report of the last day of the preceding month. The additions or deductions for the preceding month are credited or deducted on this ration return.

If the number of men fed during the month remained constant, the mess sergeant could base his expenditures on his cash credit for the month. But as this number changes from day to day, the amount expended each day should be based on the actual number rationed that day.

It frequently happens that the mess sergeant fails to allow for the changes in the number of men he feeds during the month and bases his expenditures on his ration allowance computed by the quartermaster from his last ration return. Thus, if the strength of the company is 70 men and the month has 30 days and the value of the ration is 25 cents, his ration return will call for 2,100 rations, or $525. If he has to prepare 200 additional rations during the month, he should allow his company $575 instead of $525. On the other hand, if there is a reduction in the number of men fed, causing a deduction of 200 rations prepared during the month, he should allow his company $475 instead of $525. If he does not allow for this deduction, he will find it necessary to reduce his allowance per man the following month so as to avoid running into debt. Thus, it happens that the mess sergeant frequently feeds the company bountifully one month and scantily the next, because he considers his credit with the quartermaster for that month instead of his daily allowances as shown by the morning report.

For this reason it is better to run the mess on a *daily cash basis* computed from the strength of the organization present each day as shown by the morning report.

The sergeant computes the cash value of a ration for the current month as per table in paragraph 194 or obtains the same from the quartermaster. Each day he computes the cash allowance for that day and takes care to see that the cooks do not exceed it or that they exceed it only when a saving has previously been made to cover the excess.

If in the field, on the march, or at mobilization camps, it will be necessary for the command to subsist on the ration in kind. The mess sergeant should each day compute the allowance of the components authorized in orders for the number of men present for rations carried on the morning report of the organization. Care should be taken to see that this allowance is not exceeded for that day in the preparation of the bill of fare, except when a saving has previously been made.

The table in paragraph 197 will prove useful in computing this allowance in kind when drawing or issuing, on the march or in mobilization camps.

The general scheme of figuring the bill of fare one day ahead should be followed, and in doing this the ingredients to be used in the various dishes for each meal should be set down on a memorandum or scratch pad and an accurate record kept of the value of all articles used for the bill of fare. See copy of scratch pad memorandum in connection with the following bill of fare.

This method will at first appear irksome and unnecessary, but it is the only positive method of keeping track of the daily ration allowance either on a cash basis in garrison or when drawing rations in kind in the field, on marches, or in camp.

The ingredients on the memorandum are copied on the bill of fare when the meal is prepared. The memorandum is then destroyed and the bill of fare serves as a voucher by means of which the company commander checks the stores on hand.

A model "Daily report" and a model "Daily mess statement" are also shown on pages 28 and 29 A.

The daily mess statement is the daily statement required of the organization mess sergeant. See paragraph 270.

The daily report is made up by the first sergeant and turned over to the mess sergeant each morning. It shows the number of men to be present for the three meals—dinner, supper, and breakfast—and is filed by the mess sergeant as a voucher to the Daily mess statement. See first two lines top of Model daily mess statement, "Number of men in mess."

Bill of fare.

[Organization: Prison guard mess. Date: Aug. 14 and 15, 1916.]

	Ingredients.	Cost.
SUPPER.		
Stew El Rancho	1 can pepper, 1 pound salt, 2 cans tomatoes, 12 pounds beef, 3 pounds onions, 1 bunch carrots, 1 bunch turnips, 5 pounds cabbage, 10 pounds potatoes	$2.19
Steamed rice	4 pounds rice	.20
Assorted rolls, butter	15 pounds flour, 1 pound sugar, 2 pounds lard, 2 ounces yeast, 2 pounds butter.	1.40
Stewed tomatoes	5 cans tomatoes	.51
Apple pies	6 pounds flour, 3 pounds sugar, 3 pounds lard, 1 gallon apples, 1 package cornstarch.	1.04
Ice tea	4 ounces tea, 2 pounds sugar	.31
Cost of supper		5.65
BREAKFAST.		
Corn flakes and milk	6 packages corn flakes, 2 cans milk, 1 pound sugar.	.68
Egg omelet	10 dozen eggs, 3 cans milk, 1 pound lard	2.30
Baked sweet potatoes	20 pounds sweet potatoes	.40
Bread	18 pounds bread	.45
Iced cantaloupe	2½ dozen cantaloupes	.55
Coffee and milk	2½ pounds coffee, 1 can milk, 4 pounds sugar	.74
Cost of breakfast		5.12
DINNER.		
Spanish fish sauce	2 pounds onions, 1 can tomatoes, 1 pound flour, 1 pound lard.	.30
Spanish style fish	20 pounds red fish	2.00
Mashed potatoes	22 pounds potatoes, 1 can milk	.61
Cream peas	8 cans peas, 1 can milk	.72
Bread, butter	18 pounds bread, 2 pounds butter	1.08
Sliced tomatoes and onions	½ crate tomatoes, 2 pounds onions, 1 quart vinegar.	.60
Tapioca pudding	2 pounds tapioca, 2 pounds peaches (evaporated), 4 pounds sugar.	.71
Ice water	100 pounds ice	.12
Cost of dinner		6.14
Total cost of day		16.91

Value of ration	$0.2859
Saving	.24
Savings to date	4.73
Number of rations due, 60=	17.15
Short	$——
Shortage to date	$——

Bill of fare prepared by:

Mess sergeant.....

Meals prepared by:

First cook.....

Second cook.....

Verified by:

....., *Mess Sergeant.*

Daily mess report.

Organization..... Date.....

Rations credited this date.....

DINNER.

Men present for dinner.....

Men absent from dinner.....

To be served at ..... m.

SUPPER.

Men present for supper.....

Men absent from supper.....

To be served at ..... p. m.

BREAKFAST.

Men present for breakfast.....

Men absent from breakfast.....

.....,
First Sergeant.

This slip to be prepared by the organization first sergeant for the mess sergeant by 8 a. m.

A bill of fare based on the ration in kind can be readily prepared by consulting the table in paragraph 197, showing the quantity of the different components and substitutive articles allowed per ration. The mess sergeant or cook can quickly ascertain the amounts of the different ingredients he should use for the day. This table should be used on a cash basis as well as when drawing the ration in kind. This in order that there will be no confusion when subsisting under the different methods prescribed in orders.

The various schools for bakers and cooks have blank forms for keeping mess accounts. These consist of bills of fare, stock sheets or daily mess statements, and daily reports. They can be secured upon application to the schools direct.

The following bills of fare have been prepared as a general guide for winter and summer. They are merely offered as suggestions.

Suggested method of keeping track of ingredients used for one day.

[August 14 and 15, 1916.]

Ingredients used.	Bill of fare.																			Total stock.
	Supper.					Breakfast.						Dinner.								
	Stew El Rancho.	Steamed rice.	Assorted rolls, butter, bread.	Stewed tomatoes.	Apple pies.	Iced tea.	Corn flakes and milk.	Plain omelet.	Baked sweet potatoes.	Bread.	Iced cantaloupe.	Coffee.	Spanish fish sauce.	Spanish style fish.	Mashed potatoes.	Cream peas.	Bread, butter.	Sliced tomatoes and onions.	Tapioca pudding.	Ice water.	
Beef	12												2					2			12 pounds.
Onions	3																				7 pounds.
Carrots	1																				1 pound.
Turnips	1																				1 bunch.
Cabbage	5														22						5 pounds.
Potatoes	10																				32 pounds.
Pepper, black	1																				1 can.
Salt	1																				1 ounce.
Tomatoes	2			5									1								8 cans.
Rice		4											1								4 pounds.
Flour			15		6								1								22 pounds.
Sugar			1		3	2	1					4							4		15 pounds.
Lard			2		3			1					1								7 pounds.
Yeast			2														2				2 ounces.
Butter			2							1½							18				4 pounds.
Bread																					36 pounds.
Apples					1																1 gallon.
Tea						4															4 ounces.
Corn flakes							6														6 packages.
Milk							2	½				1			1		1				8 cans.
Eggs								10													10 dozen.
Sweet potatoes									20												20 pounds.
Cantaloupes											2½										2½ dozen.
Coffee												2½									2½ pounds.
Red fish														20		8					30 pounds.
Peas																		½			8 cans.
Tomatoes, fresh																		1			½ crate.
Vinegar																			2		1 quart.
Tapioca																			2		2 packages.
Peaches, evaporated																					2 pounds.
Corn starch					1																1 package.
Ice																				100	100 pounds.
Cash value	$2.19	$0.20	$1.40	$0.51	$1.04	$0.31	$0.68	$2.30	$0.40	$0.45	$0.55	$0.74	$0.30	$2.00	$0.61	$0.72	$1.08	$0.60	$0.71	$0.12	$16.91

Value of ration	$0.2659
Number of rations due	60
Value	$17.15
Cost for day	16.91
Saving	0.24

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Daily mess statement.

(Model Sheet.)

(Organization: Bakers and cooks. Month: October, 1911.)

Date			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Number of men in mess			37	37	37	37	37	37	37	37	37	37	37	39	39	50	61	59	59	53	47	47	47	47	47	47	47	47	47	47	47	47	47
Allowance per 100 rations.	Stores.	Brought forward.																														
67.5 pounds	Beef, fresh	pounds.	28	10	31	32	40	20	40	70	40	8	50	5																		
	Beef, corned	do.		20	30	20	20	20	20	20	38	35	35	35	35	35	35	35	35	13	13	13	13	13	13	13	13	13	13	13	13	13
	Mutton	do.																														
22.5 pounds	Bacon	do.	19	16	16	15	14	11	6½	6	8	3	1				22	26	18	13	15	14	12	11	11	9	8	6	4				
	Pork, fresh	do.																	34													
	Pork sausage	do.																	18					20				15		20	20	20
	Chicken	do.														63																
	Beef hearts	do.																						14								
	Ham butts	do.				25							20																			
	Beef liver	do.								10									10					10						12	12	12
	Pork loin	do.																		25										18	18	18
	Bologna sausage	do.																														
	Vienna sausage	do.																														
	Spare ribs	do.								25																						
	Salt codfish	do.								10																						
	Ham, lunch	do.																	11									16				
	Pigs feet	do.		15																												
	Pig tails	do.		25																				15								
	Brains	do.											16																			
	Halibut	do.			27														26													
	Herring, fresh	do.									25																					
	Bread, soft	do.			12	12	15	20	25	40		15	15	15	40	35	25	25	25	20	20	25	40		25	10	25	15	20	40	25	12
	Hard bread	do.																														
112.5 pounds	Flour	do.	60	40	27	13	194	184	172	160	130	118	108	90	75	75	55	90	170	150	135	115	100	75	40	90	15	200	170	140	110	90	85	80	75
	Corn meal	do.	17	10	10	10	10	10	9	9	9	6½	6	5½	5½			100	95	90	90	90	90	90	90	90	90	55	55	90	80	80	80	80
7.5 pounds	Beans, peas	do.	90	90	88	88	86	85	81	81	76	76	76	76	76	66	66	66	66	66	66	66	66	66	66	66	60	55	55	55	45	45	45
	Beans, Lima	do.			20	20	20	15	15	15	15	15	15	10	10	10	10	10	10	6	6	6	6	6	6	6	6	2	2	22	22	22	22
	Beans, kidney	do.				25	25	25	21	21	21	21	21	21	21	16	16	16	16	16	16	16	16	16	11	11	11	31	31	31	26	26	26
	Beans, Swd., Bro	do.		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	5	5	5	15	15	15	15	17	10	10	10	10	10	10
	Beans, Cal. pink	do.		20	20	20	20	20	15	15	15	15	15	15	15	15	15	15	15	15	10	10	30	30	30	30	30	30	30	30	30	30	30
	Beans, chili	do.		15	15	15	15	10	10	10	10	5	5	5	5	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Peas, chick	do.	20	20	10	10	17	17	17	17	17	17	17	12	12	12	12	12	12	12	12	12	12	12	12	10	8	4	4	4	4	4	4
	Peas, marrowfat	do.	10	10	8	8	8	8	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Peas, blackeyed	do.	34	30	29	29	29	29	29	29	29	29	29	29	29	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	Peas, dried green	do.				30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	26	26	26	21	21	21	21	21	21	21	21
	Peas, split	do.						35	35	35	30	30	30	30	30	30	30	30	30	25	25	25	25	25	25	25	20	20	20	20	20	20	20
5 pounds	Rice	do.																		15	12	10	10	10	10	8	6	2	10	6	6	3	3
	Oatmeal	do.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3
87.5 pounds	Potatoes, fresh	do.	28	10		196	171	146	120	70	40	28	335	295	242	130	90	5	350	300	250	210	160	90	40	300	240	200	130	70	230	200	150	125
25 pounds	Onions, fresh	do.				97	83	90	72	65	53	30	26	26	21				114	108	100	90	75	50	50	40	20	10	5	5	5	2	210
4.25 cans	Tomatoes	cans.	18	18	12	10	9	8	7	12	5	3	3	2					24	20	15	15	12	12	9	4	2			48	40	30	20
	Cabbage	pounds.					5	7	12	12																						
7.4 pounds	Fruits	do.	30	30	30	27	27	27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
0.8 pound	Apples, evaporated	do.																														
	Apples, fresh	do.			38	26	26	26	15	15	15	15	192	176	170	149	120	100	90	70	30	20	336	320	300	250	225	200	150	125	125	125	125
0.8 pound	Peaches, evaporated	do.																														
4 pounds	Jam, blackberry	cans.																														
4 pounds	Coffee, roasted and ground	pounds.	221	22½	20½	16½	13½	10½	7½	50	47	44	41	38	35	32	29	25	20	15	6	3		50	45	30	25	25	25	20	20	20
	Coffee, green	do.																														
	Tea	do.	4½	4	4	3½	3½	3½	3	3	3	2½	2	1½	1½	1½	1½	1½	1½	1	1	1	1	1	1	1	1	1	1	1	1	1
	Chocolate	do.																														
	Cocoa	cans.	2																													
10 pounds	Sugar	pounds.	40	25	196	175	155	135	170	150	130	110	90	90	90	75	70	60	45	30				90	60	30	100	75	100	75	50	45	120	110
	Sugar, powdered	do.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4												
4 pounds	Salt	do.	202	200	198	197	195	194	185	180	175	175	175	170	160	130	120	110	118	115	114	112	110	100	90	85	80	80	79	77	75	74	72	70
0.25 pound	Pepper, black	cans.	3	2	3	3	3	3	3	2	1	1	1	1	6	6	5	5	4	3	3	3	3	3	3	3	2	2	2	2	3	3	3
0.5 pound	Baking powder	do.	4	4	31	31	31	3	3	3	3	2½	1	4½	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	½	1	1
4 pounds	Lard	pounds.	14	10	8	66	61	58	50	45	35	32	28	18	55	55	50	45	40	30	15		60	50	40	30	20	15	15	12	10	8	5
0.125 pound	Butter	do.																														
0.125 pound	Milk, evaporated	cans.	36	31	26	22	21	17	14	7	6	2																				
1.4 ounces	Extract, lemon	bottles.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Extract, vanilla	do.	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2
4 ounces	Cinnamon	cans.	7	7	7	7	6	6	6	5	5	5	4	4	4	4	4	4	4	3	3	3	3	3	3	3	2	2	2	2	2	2	2
	Cloves	do.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Ginger	do.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Nutmeg	ounces.	12	12	12	12	12	12	12	12	12	11	11	11	11	10	10	10	10	10	10	6	6	6	4	4	4	4	4	4	4	4	4
1 gallon	Syrup	gallons.	2½	1	1	1	1	1	1											3	3	2	2	2	2	1	1	1	1	1	1	1	1
4 gallons	Vinegar	do.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4 gallons	Pickles	do.																														
	Eggs	dozen			30	30	29	29	29	29	27	27	26	26	26	23	23	23	22	22	20	18	18	18	18	16	16	13	12	12	11	10	10
Value of stock			$35.00	$41.99	$51.75	$69.13	$76.28	$66.19	$70.16	$73.56	$71.76	$63.28	$65.05	$69.80	$62.20	$61.31	$64.34	$61.44	$72.32	$63.55	$55.96	$45.54	$53.28	$69.80	$61.43	$54.65	$63.71	$63.03	$47.91	$51.72	$57.03	$59.27	$58.01	$60.75

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DAILY PURCHASES.

Date.	Purchased— Quartermaster.	Post exchange.	Beef.	Bread.	Brown & Co.	Miscellaneous.	Amount.
Stock on hand beginning of month							$35.00
Oct. 1		$7.95	$10.64		$3.33		21.92
2				$1.86			1.86
3	$8.65	4.90			3.39		16.94
4	3.88	.65					4.53
5		2.25					2.25
6	22.99						22.99
7		7.32	16.43		13.93		31.68
8							
9	1.55	4.80					6.35
10	5.68	4.40		3.93			17.61
Carried forward	45.75	32.22	21.07	1.86	24.58		160.48

Date.	Purchased— Quartermaster.	Post exchange.	Beef.	Brood.	Brown & Co.	Miscellaneous.	Amount.
Brought forward	$45.75	$32.22	$21.07	$1.86	$24.58		$160.48
Oct. 11	8.67				5.76		14.37
12	5.20	8.67				$3.14	17.01
13				1.28		8.64	9.92
14	1.30	9.88			10.62		21.80
15	18.82				12.56		31.38
16						5.49	5.49
17	1.95	5.65					8.60
18		1.13			3.39		4.52
19		.98	10.83				11.69
20		5.05			8.62		13.67
Carried forward	81.69	64.46	31.90	3.14	65.47	17.27	298.93

Date.	Purchased— Quartermaster.	Post exchange.	Beef.	Bread.	Brown & Co.	Miscellaneous.	Amount.
Brought forward	$81.69	$64.46	$31.90	$3.14	$65.47	$17.27	$298.93
Oct. 21	9.75	5.80		3.30		5.80	24.65
22							
23	12.74	.50					13.24
24	9.66	1.87			3.93		15.46
25	2.40	8.21			5.16		15.77
26	4.81	1.25					6.06
27		.30			5.85		6.08
28		.44					.44
29		.67			2.69		3.36
30		.50			2.66		3.16
31				6.46	2.31		8.77
Carried forward	121.05	84.23	31.90	12.90	87.77	23.87	395.72

STATEMENT OF ACCOUNTS FOR MONTH.

RESOURCES.

1,390 men fed, at 22 cents; value of ration	$305.80
Received from boarders	30.00
Allowance from fund	
Stock on hand at end of month	60.75
Deficit for month	
Total	396 55

LIABILITIES.

Stock on hand beginning of month	$35.00
Quartermaster (stores)	121.05
Post exchange	84.23
Beef and bread	44.80
Brown & Co	87.77
Miscellaneous	22.87
Surplus for month	.83
Total	396 55

I certify the above is correct.

Mess Sergeant.

(To face page 42.) No. 3.

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Bills of fare for one week.

SUMMER.

BREAKFAST.

	Breakfast foods, fruits, etc.	Vegetables.	Meats.	Drinks.	Bread, butter, etc.
1	Batter cakes, sirup.	Fried potatoes...	Fried pork sausage, gravy.	Coffee...	Bread and butter.
2	Fresh apples....	Creamed potatoes.	Hash on toast...	...do.....	Do.
3	Corn flakes and milk.	French fried potatoes.	Fried eggs.....	...do.....	Hot biscuits, butter.
4	Iced cantaloupe.	Lyonaise potatoes.	Fried liver and onions.	...do.....	Toast and butter.
5	Oatmeal and milk.	French baked potatoes.	Fried Vienna sausage, gravy.	...do.....	Bread.
6	Grape nuts and milk.	Fried potatoes...	Cheese omelet...	...do.....	Hot rolls and butter.
7	French toast, sirup.	German boiled potatoes.	Soft-boiled eggs..	...do.....	Bread.

DINNER.

	Soups.	Vegetables, salads, etc.	Meats, etc.	Desserts.	Breads.	Drinks.
1	Vegetable, with croutons.	French fried potatoes, piccalilli salad, tomato ketchup.	Baked beans and bacon.	Plum pudding and sauce.	Bread...	Coffee.
2	Potato chowder.	Mashed parsnips, German boiled potatoes.	Fried fish, tomato sauce.	Rice pudding and sauce.	Bread, butter.	Ice water.
3	Cream of cabbage.	Baked sweet potatoes, green corn.	Beefsteak and onions.	Bread pudding and sauce.	Hot rolls.	Do.
4	Bean soup..	Creamed potatoes, boiled beets, lettuce salad.	Roast veal, gravy.	Brown Betty.	Parker-house rolls,	Do.

Bills of fare for one week—Continued.

SUMMER—continued.

DINNER—continued.

	Soups.	Vegetables, salads, etc.	Meats, etc.	Desserts.	Breads.	Drinks.
5	Purée of vegetable.	Candied sweet potatoes, creamed cabbage, radishes.	Beef loaf and gravy.	Tapioca pudding.	Bread...	Ice water.
6	Corn chowder.	Browned potatoes, mashed carrots, boiled greens.	Soft roast beef, gravy.	Lemon pies.	Bread, butter.	Do.
7	Cream of celery.	Mashed potatoes, sliced tomatoes, mashed squash.	Beef a la mode.	Plain cake..	Jenny Linds.	Lemonade.

SUPPER.

	Vegetables and salads.	Meats, etc.	Hot rolls, sauces, etc.	Drinks.
1	Candied sweet potatoes, sliced tomatoes.	Macaroni and cheese.	Parkerhouse rolls, apple pie.	Iced tea.
2	Potato salad, green onions, pickled beets.	Cold roast beef..	Bread.....	Do.
3	Baked potatoes, sliced tomatoes.	Stuffed peppers.	Tea buns, stewed peaches, bread.	Do.
4	Fried egg plant, hash brown potatoes.	Mutton stew....	Bread, stewed prunes.	Lemonade.
5	Baked potatoes, lettuce salad.	Pan stew.....	Bread, butter.....	Iced tea.
6	German fried potatoes, sliced pickles.	Chop suey hash.	Corn muffins, ginger bread.	Do.
7	French fried potatoes, sliced tomatoes.	Hamburger steak, gravy.	Currant buns.....	Iced tea, with lemons.

Bills of fare for one week—Continued.

WINTER.

BREAKFAST.

	Breakfast foods, fruits, etc.	Vegetables.	Meats.	Drinks.	Bread, butter, etc.
1	Fried corn meal mush, sirup.	French baked potatoes.	Beef hash.....	Coffee...	Bread and butter.
2	Oatmeal and milk.	French fried potatoes.	Hamburger steak, gravy.	...do....	Bread.
3	Milk toast.....	German boiled potatoes.	Vienna sausage, gravy.	...do....	Do.
4	.....	French fried potatoes.	Fried eggs.....	...do....	Hot biscuits, bread.
5	Boiled rice and milk.	Creamed potatoes.	Soft-boiled eggs.	...do....	Hot biscuits, butter, sirup.
6	Hot cakes, sirup.	Fried potatoes..	Fried pork sausage.	...do....	Bread.
7	Corn flakes, milk.	Lyonnaise potatoes.	Braised beef.....	...do....	Bread, jelly.

DINNER.

	Soups.	Vegetables, salads, etc.	Meats, etc.	Desserts.	Breads.	Drinks.
1	Rice and tomato.	Mashed potatoes, cheesed onions, boiled lima beans.	Roast pork, apple sauce.	Cottage pudding.	Bread...	Coffee.
2	Spaghetti...	Boiled sauerkraut, boiled potatoes.	Boiled corned beef.	Rice pudding and cream sauce.	Corn bread.	Do.
3	Corn chowder croutons.	French fried potatoes, sliced onions, pickles.	Baked beans bacon.	Plum pudding and sauce.	Bread...	Do.
4	Vegetable..	Mashed potatoes.	Fried fish, tomato sauce.	Peach pie..	...do....	Do.

Bills of fare for one week—Continued.

WINTER—continued.

DINNER—continued.

	Soups.	Vegetables, salads, etc.	Meats, etc.	Desserts.	Breads.	Drinks.
5	Barley.....	Fried onions, baked brown potatoes.	Fried beefsteak, gravy.	Pumpkin pie.	Bread...	Coffee.
6	Potato chowder.	Creamed potatoes, succotash.	Roast beef, gravy.	Apple rolls, caramel sauce.	...do....	Do.
7	Noodle.....	Baked sweet potatoes, creamed peas.	Beef á la mode.	Tapioca pudding, sauce.	Bread, butter.	Do.

SUPPER.

	Vegetables and salads.	Meats, etc.	Hot rolls, sauces, etc.	Drinks.
1	Boiled rice.....	Curry of beef.....	Bread, butter, stewed prunes.	Hot tea.
2	Potato cakes, pickles.....	Beef rolls, gravy..	Apple kutchen, bread.	Cocoa.
3	Lyonnaise potatoes.....	Macaroni and cheese.	Bread, coffee cake, butter.	Coffee.
4	Hash brown potatoes...	Fried lives and onions, gravy.	Bread, tea buns, butter.	Cocoa.
5	Fried potatoes.....	Beef potpie.....	Parkerhouse rolls, bread pudding, lemon sauce.	Hot tea.
6	Stewed tomatoes, German fried potatoes.	Beef hash.....	Spiced cake.....	Do.
7	Stewed chili beans.....	Salmon cakes.....	Assorted rolls, butter, blackberry pie.	Cocoa.

COMPONENTS OF THE RATION.

199. **Beef.**—This component is dealt with in Chapter III. It is the most important as well as the most expensive article of the ration, its value being about equal to all the other components combined. It is the foundation of the ration and careless handling will soon put an organization in debt, while if it is handled carefully substantial savings may be made with which to purchase pork, chicken, and other meats not included in the ration. The organization commander should pay particular attention to the beef and flour components, which taken together amouut to more than one-half the value of the ration.

200. **Soup.**—A good stock soup should be prepared daily for dinner and served in a course by itself, before the more substantial portion of the meal. Serve plenty of croutons or crackers with it, seeing that it is hot when served and that the grease is skimmed off. Soup stock should be made fresh every day or two. Cut the fresh meat into small pieces, break or saw the bones and place them together in cold water for several hours, then put on range and allow to simmer for about six hours. After about two hours of simmering the juices will be extracted from the meat. The meat should then be removed from the boiler before the fibers have become hard and indigestible, and placed in a cool place for use in hash, meat balls, etc. The grease rises to the top and forms a crust which may easily be removed and placed in the drip pan. The stock when prepared should be poured into another receptacle and cooled. The stock boiler should then be cleaned out and a new start made. Beef stock is not only used in making soup, but in hash, stews, gravies, pot pies, etc.

The average cook does not seem to realize that he has more opportunity to show his skill in preparing a good appetizing soup than in most other dishes. Seasoning such as can be obtained from a judicious use of different kinds of pepper, celery, bacon, or parsley and a substantial filling of different vegetables will produce a dish which the men will enjoy as much as any part of the meal.

201. **Bread and flour.**—This is the cheapest component of the ration, considering the nutritive value, and consequently the greater the quantity used, the less expensive will be the mess. At least 10 per cent should be saved on this component after buying the flour and bread used in the kitchen. This saving should be used for the

purchase of breakfast foods for which no allowance is given. Bread should not be cut until just before it is to be used and then in thin slices, which should be piled close together in order to prevent it from drying out. It should be purchased in small quantities as required from day to day. Bread left over should be piled in the form of the loaf before it was cut, covered with a cloth, put in the bread box and served first at the next meal. All crumbs and pieces of dried bread not desirable for the table should be saved and placed in a flour sack and allowed to dry out. It may then be toasted and ground for use in place of cracker crumbs or in preparing croquettes, meat balls, etc. Milk toast and bread puddings should be served often enough to use up the remainder of the dried bread.

The flour should be used in the preparation of biscuits, pancakes, hot rolls, and desserts.

Bread and rolls that have dried out may be greatly freshened by moistening and placing in a slow oven for half an hour. Place a moistened flour sack or dish towel in the bottom of a bake pan so that the ends may be folded over the bread or rolls, or place a pan of boiling water in the bottom of the oven and the pan of bread or rolls on the top shelf without a cloth, leaving the oven door on the second notch. The bread should be allowed to remain in a 20-count oven for about 20 minutes.

Hard bread which is ordered sold to the troops to prevent its accumulating may be toasted and used in soups, chowder, bread puddings, etc.

Corn meal should be served occasionally as a mush, fried or in corn bread.

202. **Baking powder.**—The allowance is sufficient for one mess of pancakes, biscuits, etc., each day. Usually about one-half as much of a more expensive baking power is required. In using baking powder remember that it, with the other ingredients, should be mixed with cold water or milk and used at once. This is because the action of water on the ingredients in the powder causes the carbonic gas, which makes the dough light and spongy, to form and escape. If the mixture is not used at once it should be kept cool, otherwise this gas will escape and the results will be unsatisfactory. The best rule is to use at once after mixing.

Recipe for baking powder.—A very good baking powder can be made as follows: Take 16 ounces of cream of tartar, 8 ounces baking soda,

and 4 ounces of corn starch and mix thoroughly by putting through a sieve at least nine times.

203. **The bean component** is one of the most important. Beans and peas contain much muscle-building material and with the right proportion of fat added in the form of bacon (about 20 per cent), are equal to meat in food value, and are a suitable substitute for fresh beef. The variety of beans served should be as great as possible. The best results are obtained by soaking the beans three hours, pouring off the water, scalding them in a second water which is poured off, boiling them an hour in a third water, then allowing them to simmer until done. This gives the beans a more agreeable flavor than if the water is not changed.

For an organization of 100 men the maximum amount of dried vegetables to be used in a 30-day period even during the season when fresh vegetables are not plentiful is as follows:

Issue beans, 200 pounds. This is sufficient for five messes of baked beans, three messes of stewed beans, and three soups.

Dried peas, 60 pounds. This will make three messes of stewed peas.

Lima beans, 60 pounds. This is sufficient for three messes of stewed beans.

Kidney beans, 45 pounds. This is sufficient for three messes of stewed beans.

Chili beans, 50 pounds. This will furnish sufficient beans for two meals of chili con carne and two of stewed beans. When served as a vegetable, add five pounds of bacon.

Rice, about 70 pounds. This should supply three meals of boiled rice, three of curry and rice, and about two puddings and leave sufficient for soups.

Dried sweet corn, 40 pounds. This is sufficient for three messes of stewed corn and three of soup. It takes up very readily about twice its weight of water and can be prepared in about 50 minutes.

Hominy, 30 pounds. This is sufficient for three messes. Should be served as a vegetable, boiled, with diced bacon added. It may be boiled and, when cold, sliced, fried, and served with sirup. The canned lye hominy is much enjoyed by the men when fried brown in ham or bacon fat and served at breakfast.

204. **Vegetables** consist of potatoes, onions, and canned tomatoes. The allowance of vegetables is ample during the winter months,

while during the season of fresh vegetables a considerable saving should be made. This saving may be used for the purchase of fresh garden truck, or when a company garden is provided should be added to the general mess fund. During the winter and early spring the mess will derive great benefit from the dried vegetables mentioned in the preceding paragraph.

Onions and *tomatoes* are most valuable as seasoning components. They may be served as a vegetable about once in five days. Tomatoes are chiefly used in soups and stews and onions in Hamburg steaks, salads, etc.

Potatoes should be stored in a cool dry place. Warmth and moisture hasten decay and promote the growth of sprouts. Sprouts should be removed as soon as they appear, as this growth exhausts the nutritive value of the potato. After peeling and until used, the potato should be kept covered with cold water, exposure to the air causing them to become dark and tough. Fermentation is likely to start if the potatoes are left in warm water. Keep them cool.

All potatoes left over should be used up in the form of fried potatoes, in meat balls, hash, soups, and salads.

All left-over vegetables should be cooled and placed in the ice box in warm weather. This applied to potatoes, beans, and salads in particular. Ferments thrive in temperatures above 70° F. The careless cook, may, through neglect, cause stomach trouble in warm weather.

Cabbage is invaluable in the season when fresh vegetables can not be procured. It contains a certain per cent of sulphur and while cooking it should be submerged in water, which absorbs the sulphur.

Parsnips, *turnips*, *beets*, and *carrots* are all valuable for a change during the winter months. If purchasing with the intention of storing for winter use they should be well matured; otherwise they will not keep.

205. **Dried fruits.**—Excellent recipes are given in this manual for handling dried fruits, and the entire allowance should be consumed in the mess unless fresh fruit is abundant and cheap enough to be purchased from the savings. The acids in fruit are desirable in a well regulated diet. The quantity of fruit allowed is based upon ordinary requirements.

The dried fruits issued are easily prepared for the table. The men tire of them when they are prepared as stews too often. They should be prepared as butter and used as fillings for pies, rolls, cobblers, plum duffs, etc.

The following recipe, by Lieut. Col. Wilkins, Quartermaster Corps, has furnished excellent results:

1. Thoroughly wash the evaporated fruit in about three waters.
2. Cover with plenty of water and soak over night.
3. Stew slowly until tender.
4. Rub through a colander and add to each pound of dried fruit used three-fourths of a pound of sugar, one teaspoonful of cloves, two teaspoonsful of cinnamon, and a little vinegar.

206. **Coffee.**—The use of tea and coffee to the exclusion of water is a great mistake. The quantity of the coffee component consumed will be greatly reduced if plenty of cold water is placed on the table where the men can help themselves. If good coffee is made the allowance is hardly sufficient. The use of tea, however, decreases the consumption.

Allow coffee to boil not over five minutes, then reduce to a simmering temperature. Do not allow it to boil violently enough to permit the air to carry of the aroma which gives the coffee its agreeable flavor. If boiled for more than five minutes the tannic acid is extracted and forms injurious compounds which irritate the membranes of the stomach. The grounds should not be allowed to accumulate for more than three meals—better two—before the pot is scoured and cleaned.

Tea is a very good substitute for coffee and should be used for dinner and supper, iced in summer. It has about the same physiological effect as coffee, but is lighter and less bulky.

In preparing tea it is well to clean it by pouring over it boiling water, then put the leaves in boiling water and allow to draw for about five minutes just before serving. Do not allow to stand longer in the hot water. About three-fourths of an ounce per gallon of water is sufficient for strong tea, one-half ounce for medium strong. Tea should not be allowed to stand in tin vessels, even for a short time, on account of the action of tannic acid on the metal.

207. **Sugar** is a cheap article of diet, considering its high nutritive value. Next to fat and oil it furnishes the most complete food for heat and energy. It is a quick-acting food and relieves exhaustion

very rapidly. It should be placed on the table and the men should be allowed to help themselves. When this method is used the consumption will increase for a short time, but soon adjusts itself when properly supervised. The mess sergeant should take care to see that none is left in the bottom of the cups after the coffee is drunk.

Granulated sugar makes an excellent sirup for table use; it is cheaper than other sirup and the men prefer it to cheap grades.

208. **Milk.**—The allowance is based upon the requirements for coffee only. If used directly in the coffee there is sufficient for use twice daily.

209. **Seasonings.**—*Flavoring extracts.*—The allowance is about sufficient, any excess used or savings made will affect the cash credit very little. Sugar, salt, bacon, ham, onions, parsnips, carrots, pepper, garlic, mustard, herbs, spices, lemons, and many other articles are used for flavoring food.

210. **Butter and oleomargarine.**—The allowance, one-half ounce per man per day, is sufficient for hot cakes, rolls, or biscuits. It should be served individually.

211. **Lard and lard substitute.**—The cash credit of this component is sufficient. The suet from beef and all surplus fat received should be carefully rendered. This with the grease skimmed from stock, soups, and gravies will furnish most of the shortening, drippings, etc., required in the kitchen. A pan or kettle in which the suet is rendered should be kept on the stove and all fat should be placed in it. The grease which gathers on the stock or on gravies, etc., should be skimmed off and placed in this pan. Each evening the grease which has accumulated in the suet pan is strained off into a jar or other receptacle and placed in a cool place. This accumulation which is called drippings can be used for frying, either deep or shallow, and can be used in rolls or pastry when carefully strained. Lard, however, is better for the latter.

212. **Desserts.**—The ration contains all the material necessary for supplying a dessert each day. The recipes given herein provide a sufficient variety. The dessert is usually one of the cheapest components of the meal and should be given at dinner and frequently at supper. The men enjoy it, especially on bean day, when a good plum duff is much relished by those who do not care for beans.

A good sauce should be provided for puddings. It costs little and is well liked. One gallon is sufficient for about 25 men.

Chapter III.

MEAT.

213. **Meat** is the general term applied to the flesh of animals for food. It includes the muscular flesh, sinews, fat, heart, liver, stomach, brains, and tongue. Meat is divided into three classes:

Meat, including beef, veal, mutton, lamb, and pork.

Poultry, including chickens, turkeys, geese, ducks, and all other domestic fowls.

Game, including partridges, grouse, pigeons, quail, and other birds; venison, and all wild meat that is hunted in forest or field.

214. Meat consists of several substances—*fibrin, albumen, gelatine, fat, and the juice of flesh.*

215. **Fibrin** exists in the blood and flesh. In the former it is soluble, owing to the alkaline nature of the blood. It is deposited by the blood made into flesh, and becomes insoluble flesh fibrin and forms a basis of fiber of muscular tissue. It is separated into bundles by membranes, and into larger or separate masses by cellular tissue, in which fat is deposited. Its true color is white; but the blood in the veins, which penetrates every part of the fiber, gives it a reddish tinge. This may be seen by washing a piece of meat in cold water. The red coloring matter is soon drawn out into the water and the remainder is a mass of white fiber. Fibrin is hardened and contracted by intense heat, but softened by moderate and long continued heat. Meat that has tough fiber should simmer, not boil.

216. **Albumen** exists in the flesh and the blood. It is the soluble portion of the flesh. It dissolves in cold water, but hardens in hot water.

217. **Gelatine** is a peculiar substance found in the tendons and gristly parts of the flesh, in the shin and the sinewy parts about the joints, and in the nutritive parts of the bones. It may be dissolved by soaking in cold water, and then kept at a simmering temperature for several hours. The solution hardens when cold. Gelatine

hardens in a dry heat, and such parts of meat as contain it in abundance should be stewed, rather than roasted or broiled, or used in the form of a pot roast, soft roast, or beef à la mode.

218. The **fat of meat** is almost exclusively found in the adipose tissue of almost all flesh which is used as food. It is liquified by heat and resolved into various acid and acrid bodies. It is a warmth giver and is therefore most appropriately used in cold seasons and climates.

219. The **juice of flesh** consists of water, a small portion of albumen and a mixture of other compounds. It is not the blood for it still exists after the blood has been withdrawn. It may be obtained by chopping lean meat into small pieces, putting it in a closely covered jar without water and heating it gradually. If heated above 160° F., the albuminous matters in it harden, turning brown. The solid residue, consisting of fibers, tissue, etc., is white, tasteless and inodorous. This separated juice is strongly acid, while the blood is always alkaline. It contains many substances which are very valuable as food, and the savory principle, which gives flavor to the meat and causes it to differ in different animals. Meat should always be cooked in such a manner as to retain the largest proportion of this juice. The juice is drawn out into the brine in salting, thus rendering salt meat less nutritous. The juice, when the water has been separated from it by evaporation, is termed "Extract of beef."

220. The flesh of all young animals is more tender, but not as nutritious as that of maturer animals. Nearly all parts of the animal may be used as food.

Meat is in season all the year, but certain kinds are better during certain seasons. Pork is best in autumn and winter; veal in the spring and summer; venison in winter; fowls in autumn and winter; lamb in the summer and fall; mutton and beef, at any time.

221. **Preserving fresh meat.**—Fresh meat is more nutritious and palatable than salted or cured meat. It is, therefore, desirable to use as large a proportion of fresh meat as possible. In a company refrigerator with a temperature of 55° F. fresh meat can be kept with safety for three or four days. When the temperature is reduced to 40° F., or less, with good ventilation and circulation of air, fresh meat can be kept for a week or 10 days. It is very important that the circulation be free and the air dry. Moisture

in a refrigerator tends to develop wet mold or slime, and a little decay soon contaminates the whole piece. Less difficulty will be experienced in preserving fresh meat if it is kept in a room where the temperature is relatively high and the air dry than where the temperature is low and the air damp.

In the North, meat is kept during the cold season by freezing. A carcass is cut up into quarters, or even smaller pieces, and hung in an outbuilding where it will remain frozen solid. When a portion is wanted it may be cut off with a saw. If the meat is then taken into a cold room and slowly thawed out the flavor is only slightly injured. No more should be taken in at one time than is wanted for immediate use. Repeated freezing and thawing are injurious to the flavor and quality of the meat, hence the importance of keeping it where the temperature will remain sufficiently low to prevent thawing.

Insects should not be allowed to get at the meat. For this reason a dark, cool cellar is a good place for keeping it. The cellar should be well ventilated, clean, and free from odors, or the meat will become tainted.

222. **How to preserve fresh meat when refrigerator facilities are not at hand.**—It should be hung in a cool, dry place and in a draft if possible. It should be well protected from flies by having cheesecloth or other gauzy material for a covering, and this should be hung loosely about the meat so as to permit a free circulation of air. If care be exercised in the handling of meat it can be kept for several days without the least sign of decay. A test to reveal the commencement of decay is the knife-blade test. Insert a clean knife blade in the meat to the bone, and if it can be extracted without resistance of the tissue it is an indication that the meat has begun to decay. The smell of the blade will indicate whether decomposition has commenced.

The cloth used for the protection of the meat is principally to keep flies from it, and hence it should not at any point come in direct contact with the meat. The meat may be hung in the middle of a frame made of barrel hoops. The cloth is then placed around the hoops, thus preventing flies from reaching the meat and permitting a free circulation of air. It may frequently become necessary to keep meat for several days in camp. In wooded coun-

try a good place is generally found in the shade of a tree and about 3 or 4 feet from the ground. However, it is still better to hang the meat about 30 feet high in the branches of a tree. In case no trees are available it should be hung in a shady spot provided by erecting a fly and suspending the meat from the ridgepole, where it will have plenty of draft.

223. **Curing meats.**—Meat must be properly and thoroughly cooled to insure good keeping qualities when cured. If salted before the animal heat is out, the shrinkage of the muscles causes the retention of injurious gases, giving an offensive odor to the meat. Neither should meat be frozen when salted, as the action of the frost will prevent the proper penetration of the salt and an uneven curing will result. It is important, also, that meat be cured as soon as cooled and while still fresh. Tainted meat may be cured so that it will keep, but nothing in the line of preservatives can bring back the natural flavor when it is once lost. The safest rule to follow is to salt meat as soon as the animal heat is out and before it freezes or starts to decay. Ordinarily, 24 to 36 hours after slaughtering will allow time for cooling.

224. *Vessel for curing.*—A clean hard-wood barrel is a suitable vessel in which to cure meat. A barrel made for the purpose is best, but where it can not be had a molasses or sirup barrel will answer.

A kerosene barrel that has been burned out and used as a water barrel for some time is often used for a meat barrel. The important part is to have it clean, free from odors, and tight enough to prevent leakage. A large stone jar is the best vessel that can be used. One holding 25 to 30 gallons is expensive however, and must be carefully handled to prevent breakage. A jar is more easily cleaned than a barrel and is in every way preferable if the first cost can be afforded. A barrel or jar that has once held meat may be used again and again unless the meat has spoiled in it. If used repeatedly it is necessary to scald it out thoroughly each time before packing with fresh meat.

THE BEEF COMPONENT.

225. The cash value of the beef component if properly handled is sufficient to cover the cost of all meats used in the company kitchen and provide a saving for other articles. By careful selection of such

low-priced meats as liver, beef hearts, and sausages together with such high-priced meats as pork, fish, chicken, etc., an average price will result which will enable one to secure a satisfactory variety, while living within the limits of the ration. Such purchases are economical when it is considered that these low-priced meats are generally without bone which in beef constitutes about 20 or 25 per cent of the whole weight.

Remember that in handling meat in the kitchen all bones and trimmings must be retained until the juices are extracted for stock and all suet and fat are rendered for drippings.

When meat is received in quarters, it is of the utmost importance that the mess sergeant and cooks understand how to cut it up for kitchen use and for what purpose each cut is best adapted. The instructions given in the following pages should be carefully followed. All tough parts of fresh meat should be put through the grinder and used as Hamburg steaks, hash, and meat balls.

Remember that in cooking tough meats a long period of slow cooking is required.

All meat should be sliced in the kitchen before serving in order that fats, gristle, and other portions that will be left, if taken on the men's plates, may be saved and either rendered out or used in some other form.

226. **Specifications for fresh beef.**—To be good in quality and condition, fit for immediate use, and equal numbers of fore and hind quarters to be delivered, including all the best cuts; no carcass to weigh less than 500 pounds when trimmed; necks to be cut off perpendicular to the line of the vertebrae, leaving but three cervical vertebrae on the carcass; the shanks of fore quarters to be cut off at the knee joint and hind quarters at the hock joint (commercial cut), and to compensate for the shank bone thus allowed to remain 2½ pounds will be deducted from the weight of each fore quarter and 3½ pounds from each hind quarter; difference between fore and hind quarters not to exceed 25 pounds per carcass (one rib to be left on each hind quarter). *Necks, kidney fat, beef from bulls and stags and from females (except from spayed heifers) will be excluded from delivery.* Such quantities of fresh meat as may be required by the quartermaster from time to time shall be delivered to him in bulk at the quartermaster's storehouse or other designated place on such days

and at such hours as he may prescribe under the direction of his commanding officer.

227. **Remarks on specifications.**—In order that the difference in weight between fore and hind quarters shall not exceed the limit (25 pounds per carcass) *the cut must be made so as to leave one rib only on the hind quarter*, and this is the ordinary packing house cut.

The minimum weight is placed at 500 pounds to insure getting a proper proportion of meat to bone.

The specified neck cut is unusual in commercial transactions, and the delivery will generally be made with five or six neck vertebræ left on the carcass unless special attention is paid to this trimming. The neck meat is worth commercially about one-half the contract price for the carcass and it should be accepted under no circumstances.

The deduction of two and one-half pounds for the shank of the fore-quarter and three and one-half pounds for the hock (both of which were formerly cut out before delivery) is very apt to be overlooked by the contractor unless especially cautioned by the responsible person. Neglect to make the neck and shank trimmings and deductions net the contractor more than $3 a carcass even when the price is as low as 11 cents per pound,

By "kidney" fat is meant the fat immediately surrounding the kidney and does not refer to other suet in the hind quarter.

The meat from bulls, stags, and cows is excluded for the reason that it is inferior to that from the steer of the same age and condition.

A careful study of the characteristics that definitely determine the differences between these classes of carcasses is necessary in order to protect the interests of the Government and of the companies, and they are clearly shown in the accompanying cuts.

228. **Sex of beef.**—*By definition, the bull is the uncastrated male, and the stag a male castrated late in life.* In practice, a bull is castrated when he has served his purpose, and economy requires that he should be placed on the market. Being castrated he takes on flesh and being fattened brings a better price at the stock yards. As a bull he will rarely fatten under any circumstances, but in either case, the flesh is very dark—conspicuously so—and the muscles "stand out," hard and compact, especially on the shanks. In the cod there is almost an entire absence of scrotal fat. The carcass of

the bull or stag shows massive shoulders, a thick, bulging neck, broad chest, a very round rump, and coarse-grained flesh. His fore-quarters are relatively larger than his hind quarters. His general make-up is so different from that of the steer that if after careful examination of the carcass a doubt exists as to whether it is a steer or a stag (or bull) the chances are that it is a steer.

The flesh of bulls and stags is drier than that of steers and cows, and is used to advantage in bologna and sausages, for when cured it will have taken up and retained more moisture than other classes of beef. As a rule contractors will not now attempt to run in such meat in quantity, but if it is delivered it should be promptly rejected. It is generally tough and unsuited to company use.

A steer is a male not full grown, castrated when young, and an ox the corresponding full grown animal. Generally speaking, we call the meat from the carcass of either "steer meat," and for Army use the only beef delivered should be from animals from 2 to 6 years of age, excepting only the meat from the "spayed heifers," which is occasionally supplied.

A spayed heifer is a female from which the ovaries were removed early in life. Cows are somtetimes spayed after having had one or more calves, if it is necessary to let them run at large with a herd while preparing them for the market, but if the operation has been performed at all the scar should generally be plainly visible in the left flank (though the ovaries are some times otherwise removed).

A cow is a female that has had a calf. *A maiden heifer* is an adult female that has not been allowed to breed.

Cows are frequently not placed on the market until much benefit has been derived from them either for dairy or breeding purposes, and consequently, they are generally older than steers when slaughtered. If killed within a certain period before or after calving they are considered unfit for food.

Generally speaking, a steer produces considerably more flesh to bone than the cow, and the carcass of a steer at the present time brings from 2 to 2½ cents per pound more than that of a cow in the same condition. This explains the tendency of contractors to run in cow meat whenever it will be accepted.

The accompanying photographs with explanations will render the determination of sex in dressed beef a simple matter.

229. **Age and quality.**—The age of dressed beef can be estimated by the character of the cartilage tipping the spines of the dorsal vertebrae; by that between the vertebrae throughout the spinal column, and by that in the brisket, sufficiently well to indicate the toughness or tenderness of the beef so as to regulate its acceptance or rejection. When the layers of cartilage between the vertebrae become so tough and hard as to resist the penetration of the point of a skewer of soft pine wood, the quarter should generally be rejected because the steer was too old. The eye will note as accompanying this condition, a very limited amount of cartilage in the brisket (practically none in the cow); the bones of the sacrum will have generally grown into a solid mass, with few or no lines of demarcation between the several vertebrae; the cartilaginous extensions of the spines of the dorsal vertebrae will be more bone than cartilage (in the cow they will be solid bone); the diaphragm will be exceedingly tough; the bones will present a bleached out appearance instead of being ruddy or full of blood as in youth; and the marrow will be hard and light yellow or almost white instead of soft and red. Generally the fat will be hard and yellow instead of soft and white as in youth, although in some breeds of cattle the fat is naturally yellow at all ages. The cartilage of the joints will be pale white instead of having a bluish tinge as in youth, and more or less "water" may be present.

The flesh of veal is of a pale red color. That of a steer should be a bright red; a deeper red indicates greater age and toughness. The flesh of a cow is generally darker than that of a steer in the same condition. The flesh of bulls and stags is very dark, so dark that it should at once be detected. Color in meat should be judged from portions that have been cut a few minutes previously. Freshly cut portions and those that have been exposed to the air for a considerable period present an unnaturally dark appearance. (For method of telling age of cattle on the hoof see par. 2305, Manual for the Quartermaster Corps, 1916.)

In passing upon meat it should be remembered that the contract specifications are so definitely stringent, so far as the contractor is concerned, and so liberal with respect to the troops, that almost any quality of beef can be procured that is insisted upon by the quartermaster and post commander. It is contemplated by the Quarter-

master Corps that the beef shall be "good in quality and condition," etc., and contractors regulate their bids by the interpretation they have noted has been made as to the same by the post authorities. A strict interpretation of the requirements results in high bids and increased cost of the ration.

It is considered, however, that regardless of what may have been the contractor's estimate of the situation at any particular post, he should be required to comply strictly with specifications as to *sex, weight of carcass, trimming of necks and allowance of weights for shanks*, etc., but that a reasonable interpretation should be put upon the clause referring to "quality and condition." *Beef for Army use should be only moderately fat*, though the fat should be well distributed and the cuts of lean meat present a marbled appearance. Beef in good condition and otherwise complying with the contract should be accepted if between 2 and 6 years of age. It is perfectly evident that we can not expect to be supplied with corn-fed beef from native stock, 2 years of age and younger, as part of the regular ration.

230. **Selection of parts for different uses in the kitchen.**—The parts of the carcass should be selected in the following order, when quality alone is considered:

Order.	Roasts.	Steaks.	Boiled beef.[1]	Corned beef.[1]
1.....	Prime rib.....	Loin.....	Shoulder..	Brisket.
2.....	Loin.....	Round.....	Brisket....	Plate.
3.....	Round.....	Prime rib...	Plate.....	Flank.
4.....	Rump.....	Rump.....	Flank.....	Rump.
5.....	Chuck.....	Clod.....	Shank.....	Shoulder.
6.....	Shoulder (or clod).....	Chuck.....	Neck.....	
7.....	Brisket (only as a last resort).....	Shoulder....		

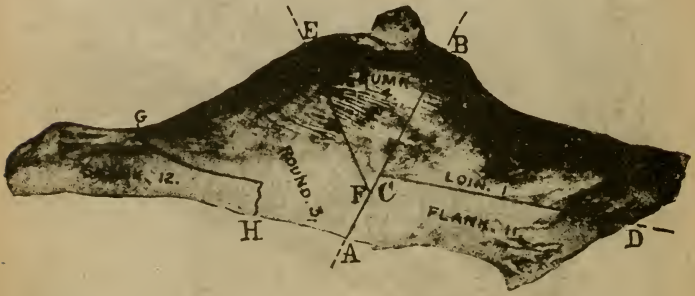
[1] While the higher grades of meat may be boiled or corned, if desired or if necessary to save them from spoiling, the parts above mentioned are those selected during the regular routine of kitchen work as being the most economical.

For Hamburg steak and potpies, meat from all parts of the carcass may be used, though the quality will, of course, depend much upon the tenderness or toughness of the parts used.

For stews, any part of the carcass may be used; but for reasons of economy it is best to use the parts noted for boiled beef.

For soups, all bones broken or sawed, and the particles of meat clinging thereto, may be used. Left-over meats may be worked in as noted in the recipes.

231. HIND QUARTER OF BEEF



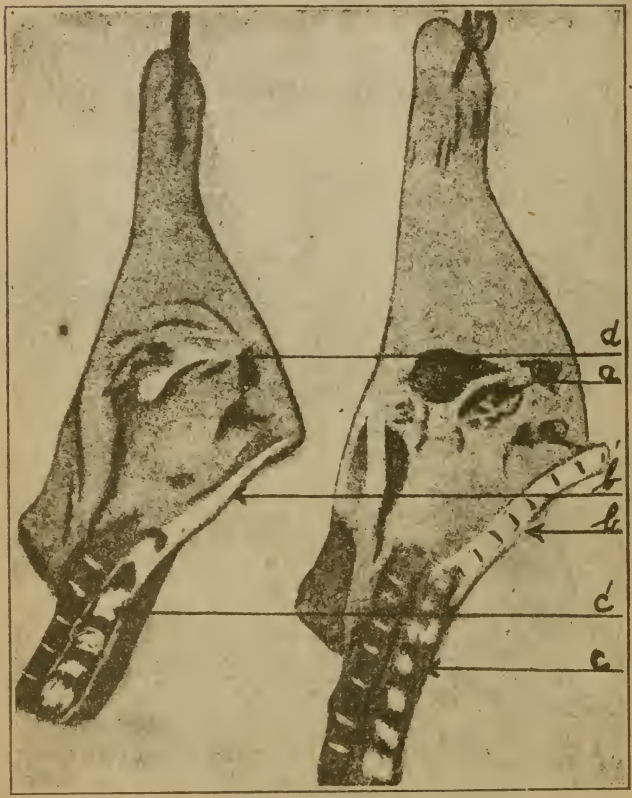
Heavy black lines show the first cuts made for any purpose whatever upon receipt of quarter. Cut from A to B just in front of joint, E to F just under aitch bone, and G to H, using knife only. Numbers refer to general value of each cut for company use, considering both quarters together.

232. FOREQUARTER OF BEEF.

Heavy lines show the first cuts made for any purpose whatever upon receipt of quarter. Cut in order, A, B, C, D, E, etc. Cut from A to B to remove shoulder, using the knife only. Numbers refer to general value of each for company use, considering both quarters together.

Each 4 years old.

COW. STEER.



Cow and steer carcasses of about the same age, condition, and general appearance are represented.

The *cow carcass.*—Note, in comparison with the steer, the slender hock and the dished-in appearance between the hock and rump; that the exterior fat of the carcass meets the end of the aitch bone at *a'*; that the inner end of the aitch bone is slightly refused, providing a broader passage for giving birth to a calf.

The rump bones at *b'* are separated in youth, but become solid at about 3 years of age, leaving no lines of demarcation.

The formation of *a'* can not be greatly altered for the purpose of deception, and this with the udder, if not cut away, are the positive proofs of sex.

The backbone at *c'* seems to be relatively weak and is generally broken during cleavage while dressing the carcass. The loin at this point generally presents a dished-in appearance.

The *steer carcass.*—Note, in comparison with the cow, the large hock, the plump appearance between the hock and rump; that the exterior fat of the carcass is separated from the aitch bone at *a* by about 2 inches of lean meat, to which a portion of the penis is generally still attached, as shown in the photograph; that the inner end of the aitch bone juts into the passage, narrowing it.

The rump bones at *b* do not grow together as early as in the cow, and show distinct lines of demarcation up to about 6 years.

The backbone at c is firm and the loin near this point straight or plump.

The formation at *a* and the presence of the cod (scrotal fat) are positive proofs of sex. If the cod has been cut away, it is sufficient cause for rejection, as this is generally done only for the purpose of making the cow and steer carcasses appear so much alike that the cow carcasses can be run in on the contract.

5 years old.

Cow carcass.—The quarter here represented may be considered as typical of the grade of cow meat generally presented for acceptance. Note the slender hock, the "dished-in" appearance above, the long, straight *aitch bone* meeting the exterior fat at *a*, the broad passage at *b*, the solid rump at *c*, the broken back at *d*, and how the udder has been cut out and skewers put in at this point.

235. HINDQUARTER, STEER.

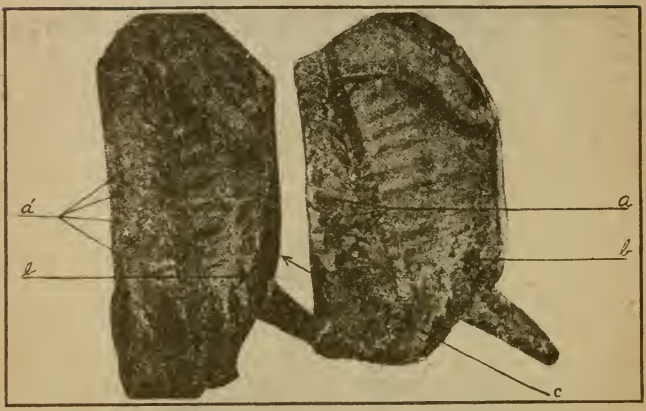
4 years old.

Steer carcass.—Note the typical formation at *a*, the narrow passage at *b*, the lines f demarcation between the bones of rump at *c*, and the lumps of fat at *d* forming the ɔd or *scrotal fat*. Note also the straight, firm loin in contrast to the weak loin shown t *d* in the cow.

236. FOREQUARTERS.

Each about 3½ years old.

COW. STEER.



Steer carcass.—Note that the spines of the dorsal vertebræ are tipped at *a* with white cartilage called "buttons." In very young animals this cartilage is perfectly white. In the 2-year old animal little red spots appear. At 3 they are more numerous. At 4 bony islands form. At 5 there is more bone than cartilage. At 6 there is but a narrow strip of white cartilage left surrounding the bone that has formed, but the line of demarcation between "spine" and "buttons" is distinct. By 9 years of age the button is solid bone and at 12 is of the same color as the bone of the spine. If 6 or older the beef should be rejected.

Note that at the forward end of the breast bone at *b* solid white cartilage is found. It disappears with age, as do the "buttons."

There is also a relatively large amount of cartilage between first and second bones of the breast.

The ribs are distinctly curved lengthwise and also in cross section. They extend perpendicularly outward from the back bone and at about the fifth vertebra from the rear. The knee is coarse.

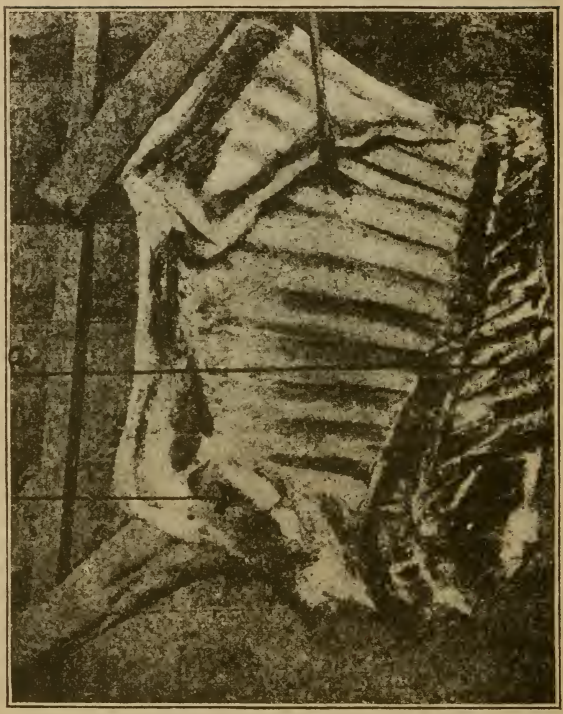
Cow carcass.—Note the absence of the buttons at *a'* referred to above. They appear in the heifer as in the steer, but generally disappear entirely between 2 and 3 years of age leaving no lines of demarcation. If none are present the quarter should be rejected.

In comparison with the steer there is very little cartilage at *b'*.

The ribs are straighter than in the steer and quite flat. They begin to bend backward at about the fifth vertebra from the rear.

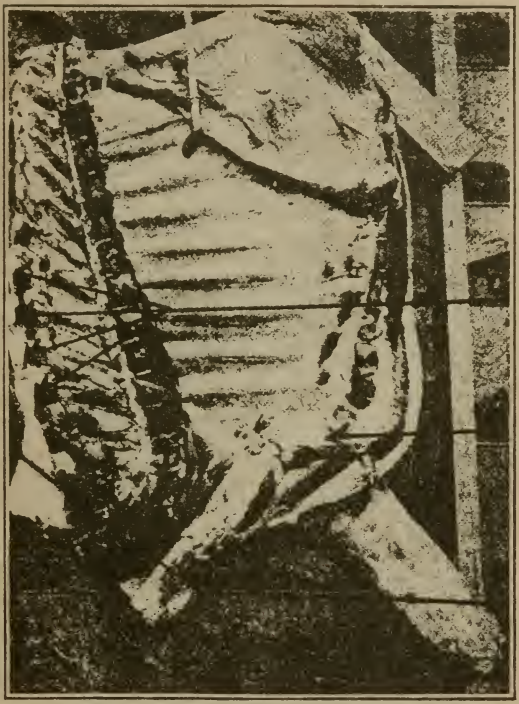
The knee is slender.

237. FOREQUARTERS OF COW.



To illustrate especially the absence of cartilage at *a*, the bony formation at *b*, and oblique angle of the ribs to back bone at about the fifth vertebra from the rear. Four years old.

238. FOREQUARTER OF STEER.



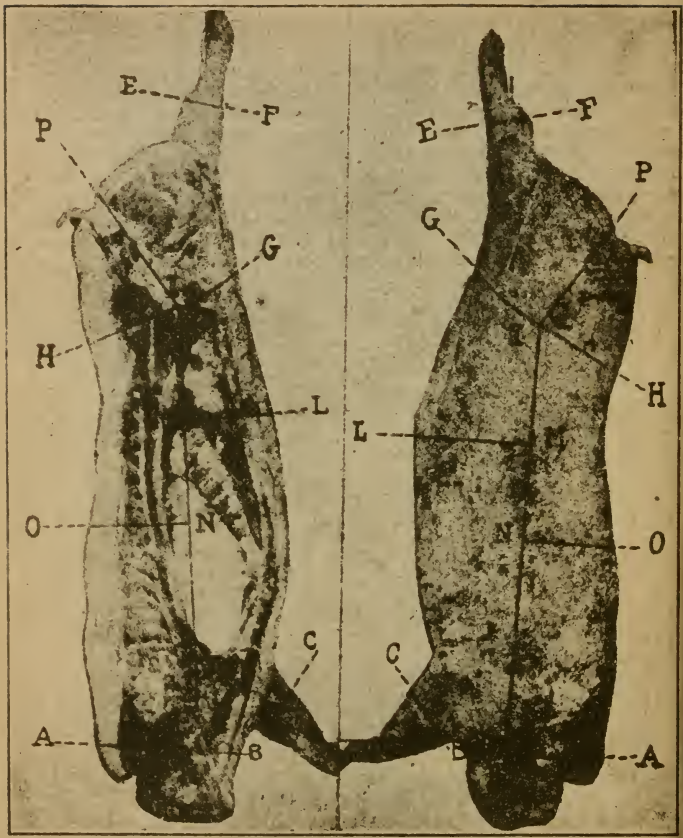
To illustrate especially the "buttons" of the spines of the back at *a*, the cartilage at *b* just beginning to turn to bone, the perpendicularity of the ribs to the spinal column at about the fifth vertebra from the rear, and the point *c* at which the neck should be trimmed off. Four years old.

239. FOREQUARTERS.

COW. STEER.

To illustrate especially the *thin neck* A *of the cow* as compared with the *thick neck* B *of the steer.*

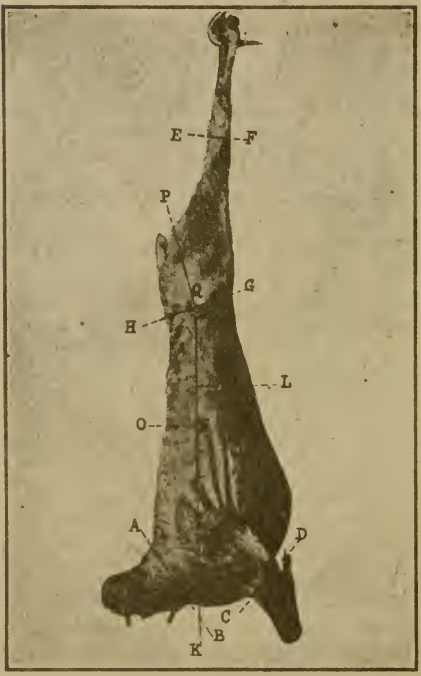
This animal was about 9 months old. Note the characteristic formation at *a*, he distinctly separated bones at *b*, the "buttons" *c*, amount of cartilage at *d*, and where the neck is cut off according to contract at *e*.



To cut up pork.—First split the carcass into halves; then cut off the neck (A-B), and shanks (C-D and E-F) of the fore and hind quarters; remove the hind quarter by the cut G-H, and then the shoulder, using the knife only. Then cut in order, I-K, L-M, N-O, and P-Q.

2. **Pork.**—Fresh pork is not supplied by the Quartermaster
os and, when desired, must generally be purchased from sav-
on the ration, unless hogs are raised by the company. The
ing up of pork is very simple, as the meat is tender and the
es are relatively soft. Unlike beef and mutton, it should be
as soon as cooled throughout. If the carcass is thoroughly
led, it is well to have two knives and one cleaver, the utensils
in use being kept submerged in a bucket of hot water. If the
ass is still warm, an extra knife is not necessary. Trim off most
ne fat and use the loin for chops and the shoulder and ham for
ts. All left-over parts—head, skin, and shanks—may be used,
ther with an equal portion of beef, in the preparation of head-
ese or sausage. (See recipe.)

243. CARCASS OF MUTTON, SHOWING CUTS.



To cut up mutton.—First split the carcass into halves; then cut off the neck (A–B) and shanks (C–D and E–F) of the fore and hind quarters, as indicated; remove the hind quarter by the cut G–H and then the shoulder, using the knife only. Then cut in order I–K, L–M, N–O, and P–Q for general use in the kitchen, or for packing in the ice box.

244. **Mutton.**—Mutton is occasionally supplied to companies in accordance with the following specifications:

To be of a good, fat, marketable quality, from wethers over 1 and under 3 years old; the carcasses to be trimmed with the heads cut off at the first vertebral joint, the shanks of fore quarters at the knee joint, and of hind at the hock joint; the average weight of the dressed carcass of mutton to be about 50 pounds.

The leg may be cut into steaks, but is generally roasted or boiled. The loin may be cut into chops, using one rib to a chop, or may be roasted. The shoulder may be used as a roast when from a young animal, or as a boil when from an old one. The brisket and flanks may be used for stews and the neck and shank for soup stock. The meat remaining in the stock boiler may be used up in fritters, meat balls, croquettes, etc., though the juices having been extracted, the meat will be hard and dry.

245. **Fish**, on account of its abundance, cheapness, and wholesomeness, is invaluable as an article of food. It is less nutritious and less stimulating than meat, as it contains less solid matter and more water. As it contains little fat, the white varieties particularly, it is easily digested and, as it has a large proportion of nitrogenous matter, it is an especially good food for those upon whom there is a great demand for nervous energy. Salmon heads the list of fish in nutritive qualities and it is richer than meat. Next in value are fat halibut, shad, whitefish, mackerel, bluefish, lean halibut, bass, flounder, trout, haddock, cusk.

Red-blooded fish, like salmon, mackerel, and bluefish, have the oil distributed throughout the body. They are nutritious for those who can digest them, but are too rich and oily for invalids. White fish, like flounder, halibut, cod, and haddock, have the oil in the liver and are more easily digested. Fish should be perfectly fresh and thoroughly cooked, or it is very indigestible and sometimes poisonous. Boiling and baking are the best methods of cooking them, Small pan fish and fillets of large white dry fish are good if fried, but oily fish should never be fried. Salting draws out the nutritive part of the fish the same as it does in meat, and either fish or meat, thus prepared, should be used as a relish and not depended upon for nourishment. Fat fish are injured less than white fish, as the fat is not removed by salting.

All varieties of fish need an accompaniment of starchy foods, like bread or potatoes; and white fish need, in addition, to be cooked with butter or fat to make them desirable as food. The juices of fish, shellfish particularly, are of an alkaline nature and this renders lemon juice or vinegar a desirable condiment as a neutralizing agency.

The flesh of good fish is firm and hard and will rise at once when pressed with the finger. If the eyes be dull and sunken, the gills pale, and the flesh flabby or soft, the fish is not fresh.

Fish should be cleaned as soon as possible in strongly salted water. They should be wiped with a cloth wet in salt water, then wrapped in a cloth which is sprinkled with salt, and put in a cool place. Put ice around if necessary, but do not allow them to remain in ice water, which will soften them. When once they lose their hard, firm consistency they are considered unfit for food.

Frozen fish should be thawed in cold water. Fresh fish having a muddy taste or smell are improved by soaking in salt water. Salted fish should be soaked in fresh water, with the skin side up, to draw out the salt.

246. *To clean a fish.*—If the fish have scales, remove them before opening. To do this, scrape with a small, sharp knife from the tail to the head; hold the knife at an angle, resting it on the fish, that the scales may be taken upon the knife; scrape slowly, that the scales may not fly over everything near, and rinse the knife often in cold water.

When the fish is to be served whole do not remove the head and tail. Smelts and small fish served whole are opened under the gills and the contents sqeezed out by pressing from the middle with the thumb and finger. Large fish are split open from the gills halfway down the lower part of the body, the entrails removed, and the inside scraped and cleaned. Open far enough to remove all the blood on the backbone. It is better to remove the sound, which is the white part adhering to the bone, though it is often left in the fish.

247. *To skin a fish.*—Cut a thin narrow strip down the backbone, taking off the dorsal fin, then open the lower part halfway down. Slip the knife under and up through the bony part of the gills, hold this bony part between the thumb and finger, and strip the skin off toward the tail. Next do the same on the other side. Small

ish, like mackerel and whitefish, when dressed for broiling should be split through the back.

248. *To bone a fish.*—Clean and strip off the skin; lay the fish flat on a board; begin at the tail and run the knife under the flesh close to the bone, holding the flesh carefully so as not to break the flakes. When the fish on one side is removed slip the knife under the bone on the other side and raise the bone, leaving the flesh on the board; then pull out all the small bones left in the flesh, which can be easily felt with the fingers. Fish with many bones, like shad and herring, are not boned; but from cod, husk, mackerel, whitefish, and haddock they may be easily removed.

Fillets of fish.—Fillets of fish are the flesh separated from the bone and served whole or divided, as the case may require. Flounder, sole, halibut, and bass should have the fillets on each side divided lengthwise, making four long thin pieces or fillets. Other fish are cut into thin slices or squares. Very small fish may be split, the bones removed, and the whole fish rolled up from the tail to the head and fastened with a skewer

Chapter IV.

THE ELEMENTARY PRINCIPLES OF COOKING AND THE ELEMENTS OF NUTRITION.

249. **Preparation of food,** or proper cooking, has much to do with the nutritive value. Cooking changes food into more soluble forms and renders it more nutritious and appetizing. The application of the heat necessary for cooking destroys any disease germs, parasites, and dangerous organisms that the food may contain. This applies to both animal and vegetable food. The cooking of meat brings out the flavor and odor of the extractives and softens the gelatinoids of the connective tissues, making the meat more tender. Extreme heat, however, has a tendency to harden the lean portions (albuminoids) and decrease the flavor.

Meats lose weight in cooking, mainly through the loss of water. The nutritive value of beef soup depends upon the substances dissolved by the water out of the meat, bones, and gristle.

In many vegetables the valuable portions (carbohydrates) are contained in tiny cells with thick walls on which the digestive juices have little effect. The heat of cooking ruptures these walls and makes the starch more soluble. The heat tends also to produce agreeable flavors by changing the starch into sugar.

Flour is made more palatable in the form of bread, cake, and pastry through the use of compressed air, yeast, or baking powder.

Scrupulous cleanliness should always be observed in handling, keeping, and serving the food. This is most important for the sake of health. Cleanliness in handling food not only consists in personal cleanliness, the cleanliness of utensils, kitchen equipment, etc., but also freedom from undesirable bacteria, other minute organisms, worms, and parasites. *Food, raw or cooked, should be kept scrupulously clean,* whether in the market, the cart, or the storeroom; otherwise it is likely to be contaminated. *Infected water, milk,*

oysters, and certain vegetables have been known to spread typhoid, cholera, scarlet fever, and diphtheria, thus bringing sickness and death to large numbers of people.

Meats may also contain parasites such as tapeworms in beef, pork, and mutton, also trichinæ in pork, which are always injurious to the health.

Vegetables, too, have been known to become contaminated with the eggs of parasites, due to certain garden fertilizers.

Raw fruits and vegetables should always be thoroughly cleaned before eating. The heat of cooking is usually sufficient to destroy all dangerous organisms.

250. **Methods of cooking.**—The object to be attained will often decide the manner of cooking. For example, in roasting meat we desire to retain the juices within. Hence the meat is placed in a very hot oven to seal the pores and prevent the escape of the juices, the oven being reduced to a lower temperature when the meat has been thoroughly browned.

To make beef stock, first place the bones and fresh meat in cold water for some time, as the juices of the bones and meat are readily extracted in this manner. The process is hastened by the addition of a little salt.

To make a stew or potpie, a part of the meat juices should be retained in the meat and a part in the surrounding liquid; hence we place the meat in cold water and bring it to a boil as soon as possible in order to seal the pores after a certain amount of the juice has been extracted.

To get the best results in boiling beef, it is necessary to retain the juices within the meat. For this reason the water is made to boil briskly before the meat is introduced. Upon contact with the hot water the pores are sealed. The temperature is then lowered and the cooking continued at a simmering point.

Size of articles.—The time required for cooking any article depends upon its size; consequently, when several pieces of meat are roasted in the same pan, or when potatoes are baked together in the same oven, an effort should be made to have them about the same size.

Reason for uniform texture.—It is owing to the maintenance of an even temperature in the presence of moisture that it is possible to make bread, cakes, meat balls, fritters, etc., of the same texture throughout, while a thin brown crust is formed on the surface. It has been shown by the use of a maximum thermometer that while the temperature of a baking oven is about 450° F., the temperature within a loaf of bread while baking never rises appreciably above 212° F., the highest temperature of free steam.

251. **Temperature of baking, etc.**—Frequently too little attention is paid to the proper temperature of the oven and to the general character of the meat or other articles to be cooked. For example, a temperature that is exactly right for browning a roast will ruin a fruit cake in a few minutes. To roast properly a tough piece of meat requires a "slow" oven and much time in order to permit the heat to penetrate to the center, thoroughly dissolving and breaking down the tissues, thus making it tender, while a small piece of meat can be roasted in a "quick oven." It is this principle of slow cooking in a moderately low temperature for a long period that renders the fireless cooker so much superior to anything else for certain kinds of work, especially that of cooking tough meat until it is tender.

To determine the temperature of an oven.—A good practical method of determining the temperature of an oven is to insert the hand well into it and count the number of seconds that you are able to keep it there. In counting, repeat moderately slowly 0–1000, 1–1000, 2–1000, and the small numbers indicated will correspond very closely to the number of seconds. The burning sensation experienced about the roots of the nails is sufficiently uniform to the experienced cook to render this a reliable method. It is followed by the experienced chef and should be by the student cook. If the temperature of the oven is somewhat greater than anticipated, food will often have the appearance of being well done, when, as a matter of fact, the cooking has barely begun. For this reason a cook should have some idea as to the "times" of cooking, as well as to oven temperatures. Consult the following table.

252. Table of oven temperatures as determined by the hand-second counts:

	First counts.	Counts after browning.	Time.
Meats:			
Beef roast, 5-pound pieces	10	18	1½ to 2½ hours.
Mutton roast, 5-pound pieces	12	20	2 to 2½ hours.
Pork roast, 5-pound pieces	15	20	2 to 3½ hours.
Veal roast, 5-pound pieces	12	18	2½ to 3 hours.
Venison roast, 5-pound pieces	12	18	2½ to 3 hours.
Turkey roast, 12 pounds each	12	18	2 to 3½ hours.
Chicken roast, 3 pounds each	12	18	1½ hours.
Duck roast, 3 pounds each	12	18	1½ hours.
Salmon hash	12	16	1 to 1½ hours.
Vegetables:			
Beans	15	30	12 hours.
Carrots	15	17	1 hour.
Parsnips	15	17	40 to 60 minutes.
Potatoes, baked	12	15	30 to 40 minutes.
Potatoes, browned	10	15	20 to 30 minutes.
Potatoes, cheesed	15	18	40 minutes.
Potatoes, hashed	12	15	30 minutes.
Potatoes, Lyonnaise	12	15	30 minutes.
Potatoes, sweet	15	17	30 to 60 minutes.
Squash	15	17	30 to 40 minutes.
Breads:			
Braided bread, 2-ounce	12	14	20 to 25 minutes.
Cinnamon rolls, 2-ounce	10	12	10 to 15 minutes.
Jenny Linds, 16-ounce	18	20	30 to 40 minutes.
Muffins, 2-ounce	15	15	20 to 30 minutes.
Parkerhouse rolls, 2-ounce	10	12	10 to 15 minutes.
Raisin buns, 2-ounce	15	18	35 to 40 minutes.
Sandwich buns, 2-ounce	10	12	10 to 15 minutes.
Tea buns, 2-ounce	15	18	35 to 40 minutes.
French bread, 18-ounce (13 inches long)	14	30	40 minutes.
Cakes:			
Apple, 16-ounce (6 by 10 inches)	15	15	20 to 30 minutes.
Coffee, 16-ounce (6 by 10 inches)	15	15	15 to 20 minutes.
Apple kutchen, 16-ounce	15	18	25 to 30 minutes.

253. **Cold is used in preventing fermentation,** hence is a preservative of food. We constantly make use of this fact by placing butter, milk, meats, etc., in the ice box; by storing certain vegetables and fruits in root cellars and pits in the ground; by preserving yeast in a cool place; and by stopping the further proving (rising) of dough, so that it shall not be ready to bake before the oven is ready to receive it. Fresh meat will keep better in a moderately cool, dry place than in a damp ice box at a much lower temperature. Should hot weather require the use of the ice box, the meat should not come in contact with the walls or with the ice.

Cold water keeps fresh vegetables from wilting. It quickly restores such garden truck as radishes, lettuce, onions, etc., that have been exposed to the sun after gathering or have been left in a warm temperature for a time, rendering them fresh, crisp, and wholesome. Potatoes and turnips that have been peeled must be placed in cold water to keep them crisp and to prevent them from becoming discolored and tough. If cooked while wilted and discolored they retain their discoloration and toughness to a considerable extent.

Cold water draws out certain undesirable flavors when vegetables and certain canned, barreled, or dried fish and meats are submerged in it. It also extracts the juices from meats and bones. This process is hastened by the addition of a small quantity of salt.

254. **Flavors.**—Food should possess decided flavors without being too highly seasoned. It should be served hot or cold as intended. Generally we like our tea, coffee, cooked vegetables, and meats served hot, while we prefer our drinking water, butter, salads, fresh fruits, such garden truck as lettuce, radishes, and onions, and many of our desserts served cold. Many components of a meal that are lukewarm instead of decidedly hot or cold are most unappetizing.

255. **Seasoning.**—Cooks must not be satisfied with learning the proper proportions of ingredients and think that the work is done when the cooking begins. Food must be properly prepared, delicately seasoned, and served hot or cold as desired. Lukewarm, ill-seasoned food is unpalatable, and if served in a slovenly manner is most unappetizing. Any amount of seasoning at the table can not make up for poor seasoning in cooking. The same flavors can not be obtained. The only cook that should be styled a chef is one

who uses the proper proportions in cooking, who delicately seasons his food and serves it in an appetizing manner.

The heat of cooking seems to create new flavors and to change the odor, taste, and digestibility of nearly all food. It swells and bursts the starch cells in flour, rice, and potatoes. It hardens the albumen of eggs, fish, and meat and softens the fibrous substances in tough meats, vegetables, and fruits. It develops new flavors in tea, coffee, roast meats, vegetables, crusts of bread, baked beans, etc.

Air (or the oxygen which it contains) plays an important part in the development of certain flavors. Steak broiled in the open air, bread toasted in the same manner, and roasted ears of corn possess certain flavors that can not be obtained in any other way.

It is also noticeable that articles of food cooked in a closed oven possess certain flavors that are lost if the cooking is done in the open air on the top of the range.

Baked apples have a particularly fine flavor, largely due to transformation of starch into sugar and to the caramelization of the sugar used in baking.

It is generally believed that certain vegetables, such as turnips and cabbages, should be well ventilated while boiling, in order that the obnoxious sulphurous and other gases may escape from the food and that, if this is not done, the vegetables will possess an inferior flavor, become discolored, and contain certain elements that are injurious. Nevertheless, cabbages and turnips can be boiled perfectly and will retain their fresh color and desirable flavor by submerging them in boiling water for a half hour or so, according to the size. In this way obnoxious fumes do not escape, but such sulphur as is extracted from the vegetables remains in the water.

Water is a necessity in certain forms of cooking. For example, beans and peas have to absorb a great deal of water to replace that lost in the process of ripening before they can be made into palatable food. The same may be said of desiccated (dried) fruits.

256. **Deep lard.**—The advantage of cooking in deep lard lies in the fact that lard or drippings can be heated to such an extremely high temperature that certain articles can be thoroughly cooked without giving time for the grease to soak into them. Grease boils at about 565 to 600° F., but this temperature is too high for cooking; the exterior of the food would be burned before it is cooked throughout.

The grease begins to smoke between 385 and 450° F., and this is the best temperature at which to use it. A common error is to introduce too much food at one time, cooling the fat and allowing it to soak into the food before it is thoroughly cooked. If this fact is borne in mind, almost anything that can be fried at all can be fried in "deep lard." Meat balls, potato balls, and croquettes are rolled in egg and cracker or bread crumbs before frying; the egg coagulates, and the crumbs, which are held in place by it, form a brown crust surrounding the ball, and the grease is prevented from penetrating further. Corn fritters contain eggs, and a good crust is quickly formed, preventing the penetration of the grease.

It is noticed that as soon as the articles mentioned have been dropped into the grease which is far below its boiling point a violent ebullition is observed. This is due to the escape of steam formed by contact of the moisture in the article introduced with the hot grease. All articles fried in deep lard should have as dry a surface as possible. If food with a damp surface is introduced, grease is apt to be thrown out upon the range, take fire, and cause trouble.

ELEMENTS OF NUTRITION.

257. The problem of proper nutrition has always been of great importance, yet scientific study of this subject is comparatively recent. Food investigation has been carried on in Europe for almost three-quarters of a century. It is more recent in the United States.

Constant use has made us familiar with our ordinary foods, but we seldom realize how complicated they are. To understand them requires much study of chemistry, physics, and physiology—more, indeed, than the average man desires to trouble with. However, we can better understand dieting and feeding of men by being familiar with a few of the elementary principles of nutrition.

258. The chemical composition of the body and of food are very similar. They are made up of the same chemical elements and should be discussed together. From 15 to 20 of these elements are found in both the body and food. The most abundant of these are oxygen, hydrogen, carbon, nitrogen, calcium, phosphorus, and sulphur. These elements are so combined as to form a great variety

of compounds, of which the most important are protein, fats, carbohydrates, mineral matter, and water.

The functions of these compounds in the food are to build and repair the tissues, to furnish muscular and other power for the work the body has to do, and to furnish heat to keep the body warm.

259. **Water** is the most abundant of these compounds. It forms over 60 per cent of the weight of the body of the average man and is a component part of all the tissues. It is an important part of food, although it cannot be burned and yields no energy to the body.

260. **Mineral matter** yields little or no energy, yet is indispensable to the body. It forms only 5 or 6 per cent of the body by weight and is found chiefly in the bones and teeth, but is also present in the other tissues and in solution in the various fluids. When food, or body material, is burned, the mineral constituents remain as ash.

261. **Protein.**—The term includes the principal nitrogenous compounds in foods which are the tissue formers and make the framework of the body, build up and repair the nitrogenous materials such as the muscles and tendons, and supply the albuminoids of the blood, milk, and other fluids.

These compounds form about 18 per cent of the weight of the body and are subdivided into:

Albuminoids, which include substances similar to the white of an egg, the lean of meat, curd of milk, and gluten of wheat.

Gelatinoids, which occur principally in the connective tissues, such as the collagen of the skin and tendons, and the ossein of the bones.

Extractives are the principal ingredients of meat extracts, beef tea, and beef stock. They are believed neither to build tissue nor to furnish energy, but to act as stimulants and appetizers. The craving which some persons have for meats is believed to be due, in part, to a desire for these extractives. The same compounds are found in potatoes and other vegetable foods.

The *albuminoids* and *gelatinoids* are the most important elements of our food. They are essential, as they make the basis of bone, muscle, and other tissues. They are most abundant in animal food such as lean meat, though the cereals contain them to a considerable extent, and peas and beans in large proportion.

262. **Fats**, which form about 15 per cent of the weight of the ordinary man, occur chiefly in animal foods such as meat, fish, butter,

etc. They are also abundant in some vegetable products such as olives and cotton seed, from which the oils are derived. They also are found in some cereals, notably oatmeal and maize and in various nuts. In our bodies, and those of other animals, fats occur in masses under the skin and in other locations and in minute particles throughout the tissues. The amount of fat in the body varies with conditions. When more food is taken than is necessary for immediate use part of it is stored as a reserve chiefly in the form of fat. When the food supply is short this reserve material is drawn upon for supplementary fuel.

263. **Carbohydrates**, which form only about 1 per cent of the body tissues, include such compounds as starches, sugars, and fibers of plants (cellulose). They are found chiefly in vegetable food—cereals, potatoes, and fruits—forming an abundant source of energy, and are important food ingredients, easily digested. They are transformed into fat in the body and remain stored in concentrated form for future use.

264. **Refuse** is that part of our food, such as bones of fish and meat, shells of eggs, skins and seeds of fruit and vegetables, etc., which have little or no nutritive value and which are either unpalatable or can not be easily digested. These materials contain the same ingredients as the edible portions, though usually in smaller proportion.

265. **Use of expensive food.**—The mistake is often made of purchasing expensive varieties of food when cheaper ones will answer the purpose just as well. The cause of this error is ignorance of the simple principles of nutrition and the result is a waste of money. The maxim "the best is the cheapest" does not apply to the high-priced foods. The plain substantial standard food materials, like fish, milk, flour, corn meal, oatmeal, beans, potatoes, and the cheaper cuts of meat are as digestible and as nourishing to people in good health as the more expensive articles.

An understanding of the elements of nutrition, skillful cooking, and tasteful serving will effect a saving that will be surprising.

266. **A balanced diet** is one that supplies the proper amount of nourishment to the body without having any component greatly in excess of the requirements. Unless great care is exercised a diet will result which is one-sided or badly balanced; that is, one which gives

an excess of either protein or carbohydrates. If a person eats large quantities of meat and few vegetables, the food is too rich in protein and probably harmful. On the other hand, if he eats vegetable food to the exclusion of meat he may overload his digestive organs with surplus food of that kind, which produces an excess of carbohydrates.

The Army ration, however, is well balanced and supplies the various ingredients in the proper proportions. The mess sergeant should study the following table of food values as a guide in purchasing the varieties of food required to make the mess attractive. He should endeavor to select the cheaper articles which assure the greatest fuel value, other things being equal.

267. The table is of special interest when comparing the usefulness to the system of different classes of foods or when determining the relative value of substitutive articles. For example, in order to keep down the expenses of a mess and to add variety it may be desirable to substitute beans for meat on certain days. With either beans or meat, potatoes would probably be served, but when beans are placed on the bill of fare, they may take the place not only of meat, but also of a "second vegetable," as onions, tomatoes, cabbage, turnips, etc.

Assume that a mess of 100 men consumes at the noon meal 45 pounds of solid beef, and as a second vegetable, 25 pounds of onions.

From the tables of food values we note:

	Calories.
45 (pounds round) × 890 calories	40,050
25 (pounds onions) × 190 calories	4,750
Total	44,800

Now substitute a mess of beans for the above. Twenty-five pounds of beans and five pounds of bacon (for fat and flavor) are considered sufficient.

From the tables of food values we note:

	Calories.
25 (pounds beans) × 1,520 calories	38,000
5 (pounds bacon) × 2,715 calories	13,575
Total	51,575

Assuming that the latter are as fully digested as the meat and onions, it would seem that the ordinary addition of from 20 to 25 pounds of bacon is an unnecessary expense.

In the same way it may be shown that macaroni and cheese may be used as a satisfactory substitute for meat, and practical results bear out our theoretical deduction. In either case, the amount of protein (muscle-building material) and of fat and carbohydrates (energy producers) compare favorably with that found in the meat. In the same way it may be shown that fresh garden truck should not constitute the bulk of any meal. Compare the fuel value of coffee, cocoa, chocolate, etc.

268. *Average composition and fuel value of common food products.*

Food materials (as purchased).	Refuse.	Water.	Protein.	Fat.	Carbohydrates.	Ash.	Fuel value per pound.
ANIMAL FOOD.							
Beef, fresh:	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Calories.*
Porterhouse steak	12.7	52.4	19.1	17.9	.....	0.8	1,100
Ribs	20.8	43.8	13.9	21.2	.....	.7	1,135
Round	7.2	60.7	19.0	12.8	.....	1.0	890
Forequarter	18.7	49.1	14.5	17.5	.....	.7	995
Hindquarter	15.7	50.4	15.4	18.3	.....	.7	1,045
Beef, corned	8.4	49.2	14.3	23.8	.....	4.6	1,245
Veal:							
Forequarter	24.5	54.2	15.1	6.0	.....	.7	535
Hindquarter	20.7	56.2	16.2	6.6	.....	.8	580
Mutton:							
Forequarter	21.2	41.6	12.3	24.5	.....	.7	1,235
Hindquarter	17.2	45.4	13.8	23.2	.....	.7	1,210
Pork, fresh:							
Ham	10.7	48.0	13.5	25.9	.....	.8	1,320
Shoulder	12.4	44.9	12.0	29.8	.....	.7	1,450
Pork, salted; cured and pickled:							
Ham, smoked	13.6	34.8	14.2	33.4	.....	4.2	1,635
Salt pork	.....	7.9	1.9	86.2	.....	3.9	3,555
Bacon, smoked	7.7	17.4	9.1	62.2	.....	4.1	2,715
Sausage: Pork	.....	39.8	13.0	44.2	1.1	2.2	2,075
Soups:							
Beef	.....	92.9	4.4	.4	1.1	1.2	120
Tomato	.....	90.0	1.8	1.1	5.9	1.5	185
Poultry:							
Fowls	25.9	47.1	13.7	12.3	.....	.7	765
Turkey	22.7	42.4	16.1	18.4	.....	.8	1,060

Average composition and fuel value of common food products—Con.

Food materials (as purchased).	Refuse.	Water.	Protein.	Fat.	Carbohydrates.	Ash.	Fuel value per pound.
ANIMAL FOOD—continued.							
Fish:	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Calories.*
Mackerel, whole, fresh	44.7	40.4	10.2	4.2	.....	.7	370
Shad, whole, fresh	50.1	35.2	9.4	4.8	.....	.7	380
Cod, salt	24.9	40.2	16.0	.4	.....	18.5	325
Salmon, canned	.....	63.5	21.8	12.1	.....	2.6	915
Oysters, "solids"	.....	88.3	6.0	1.3	3.3	1.1	225
Eggs: Hen's eggs	11.2	65.5	13.1	9.3	.....	.9	635
Dairy products, etc.:							
Butter	.....	11.0	1.0	85.0	.....	3.0	3,410
Whole milk	.....	87.0	3.3	4.0	5.0	.7	310
Skim milk	.....	90.5	3.4	.3	5.1	.7	165
Condensed milk	.....	26.9	8.8	8.3	54.1	1.9	1,430
Cream	.....	74.0	2.5	18.5	4.5	.5	865
Cheese, full cream	.....	34.2	25.9	33.7	2.4	3.8	1,885
VEGETABLE FOOD.							
Flour, meal, etc.:							
Graham flour	.....	11.3	13.3	2.2	71.4	1.8	1,645
Wheat flour, patent roller process—							
High grade and medium	.....	12.0	11.4	1.0	75.1	.5	1,635
Low grade	.....	12.0	14.0	1.9	71.2	.9	1,640
Macaroni, vermicelli, etc	.....	10.3	13.4	.9	74.1	1.3	1,645
Rye flour	.....	12.9	6.8	.9	78.7	.7	1,620
Corn meal	.....	12.5	9.2	1.9	75.4	1.0	1,635
Oat breakfast food	.....	7.7	16.7	7.3	66.2	2.1	1,800
Rice	.....	12.3	8.0	.3	79.0	.4	1,620
Tapioca	.....	11.4	.4	.1	88.0	.1	1,650
Starch	.....	.....	.....	.....	90.0	.....	1,675
Bread, pastry, etc.:							
White bread	.....	35.3	9.2	1.3	53.1	1.1	1,200
Graham bread	.....	35.7	8.9	1.8	52.1	1.5	1,195
Rye bread	.....	35.7	9.0	.6	53.2	1.5	1,170
Sugars, etc.:							
Molasses	.....	.....	.....	.....	70.0	.....	1,225
Sugar, granulated	.....	.....	.....	.....	100.0	.....	1,750
Maple sirup	.....	.....	.....	.....	71.4	.....	1,250

Average composition and fuel value of common food products—Con.

Food materials (as purchased).	Refuse.	Water.	Protein.	Fat.	Carbohydrates.	Ash.	Fuel value per pound.
VEGETABLE FOOD—continued.							
Vegetables:	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Calories.*
Beans, dried	.....	12.6	22.5	1.8	59.6	3.5	1,520
Beans, lima, shelled	.....	68.5	7.1	.7	22.0	1.7	540
Beets	20.0	70.0	1.3	.1	7.7	.9	160
Cabbage	15.0	77.7	1.4	.2	4.8	.9	115
Celery	20.0	75.6	.9	.1	2.6	.8	65
Corn, green (sweet), edible portion	.....	75.4	3.1	1.1	19.7	.7	440
Cucumbers	15.0	81.1	.7	.2	2.6	.4	65
Lettuce	15.0	80.5	1.0	.2	2.5	.8	65
Onions	10.0	78.9	1.4	.3	8.9	.5	190
Parsnips	20.0	66.4	1.3	.4	10.8	1.1	230
Peas, dried	.....	9.5	24.6	1.0	62.0	2.9	1,565
Potatoes	20.0	62.6	1.8	.1	14.7	.8	295
Rhubarb	40.0	56.6	.4	.4	2.2	.4	60
Sweet potatoes	20.0	55.2	1.4	.6	21.9	.9	440
Squash	50.0	44.2	.7	.2	4.5	.4	100
Tomatoes	.....	94.3	.9	.4	3.9	.5	100
Turnips	30.0	62.7	.9	.1	5.7	.6	120
Fruits, etc., fresh:							
Apples	25.0	63.3	.3	.3	10.8	.3	190
Bananas	35.0	48.9	.8	.4	14.3	.6	260
Muskmelons	50.0	44.8	.3	.....	4.6	.3	80
Oranges	27.0	63.4	.6	.1	8.5	.4	150
Watermelons	59.4	37.5	.2	.1	2.7	.4	50
Fruits, dried:							
Apples	.....	28.1	1.6	2.1	66.1	2.0	1,135
Apricots	.....	29.4	4.7	1.0	62.5	2.4	1,125
Miscellaneous:							
Chocolate	.....	5.9	12.4	48.7	30.3	2.2	5,625
Cocoa, powdered	.....	4.6	21.6	28.9	37.7	7.2	2,160
Cereal coffee, infusion (1 part boiled in 20 parts water)	.....	98.2	.2	.....	1.4	.2	30

Chapter V.

MANAGEMENT OF THE COMPANY MESS.

269. **Kitchen economy.**—In organizations of from 40 to 75 men the following enlisted men are required for duty in the company mess:

1 mess sergeant.
1 first cook.
1 second cook.
1 dining-room orderly.
2 cook's police.

For a larger organization, up to 115 men, there should be one additional cook's police. In organizations of from 115 to 150 men an additional cook should be provided.

270. **Duties of the mess sergeant.**—The mess sergeant is in immediate charge of the mess and directly responsible for its management. He should be a well-instructed cook, if possible a graduate of one of the training schools, and especially selected on account of his fitness for the position.

Under the direction of the company commander, he draws or purchases all rations and other supplies required for the company mess.

He prepares all bills of fare and submits them to the company commander for approval.

He submits to the company commander a daily statement showing the exact financial condition of the mess. This statement includes receipts from all sources from the first of the month, the cash credit with the quartermaster, value of stock on hand, the allowance from the company fund, if any, and a detailed report of the expenditures. A balance is struck, and clearly shows whether the stock on hand, the credit with the quartermaster, and the unexpended cash are sufficient for running the mess for the number of days remaining in the ration period.

He is responsible for the care and preservation of the rations and sees that fresh vegetables are picked over when first received.

Those decayed should be returned to the quartermaster; others not in first-class condition should be washed and dried before storing.

He has the cooks' white clothing laundered, mended, and replaced when worn out.

He frequently checks the dishes and utensils for which he is responsible, and submits at the end of the month a list of all broken or missing articles, with the names of the soldiers against whom charges for the same should be entered.

He has the ice box scrubbed with soap and hot water every day just before the ice is delivered. He requires that all utensils, including those of the field equipment, are kept clean and in their proper places when not in use.

He requires that the men detailed as kitchen police report not later than 10 minutes before mess call for breakfast and that they absent themselves only by authority or in case of actual necessity.

He is present in a clean white coat and trousers 30 minutes before mess call and personally supervises the final preparation of the food and the service of the meals.

He is responsible for the orderly conduct of those present at meals and that all enter the dining room in proper uniform in a quiet and orderly manner and with hands and faces washed and hair combed.

He has the kitchen and dining room prepared for inspection at the time appointed by the company commander.

He sees that all the seats at the tables are occupied in succession, beginning with the table farthest away from the entrance. He prevents loud talking and other unnecessary noises and requires that the men wait quietly at their places until the food is passed to them. He prevents them from wasting food by taking more on their plates than they will eat. Food left on the plates is not used again; that which remains on the platters, serving dishes, etc., is returned to the kitchen, to be served in some other palatable form at a subsequent meal.

He has the garbage and slop cans frequently emptied, and does not allow them to stand in the kitchen or near the outside doors. Tin cans and other noncombustible materials must not be mixed with slops in garbage cans. The garbage is frequently burned and the crematory and cans clog up the grates. If the slops are carried away for hogs, cans and glass are a great nuisance.

271. **Suggestions to mess sergeants.**—The bills of fare should vary constantly. For each meal there should be at least one dish that has not been served for some time.

Seasonings penetrate foods best in the liquid or semiliquid state and much more quickly when hot than when cold, and consequently any amount of seasoning after the food is placed on the table can not compensate for insufficient or careless seasoning while in the course of preparation.

The prevention of waste and the proper use of left-over food is the secret of success in company kitchens.

The kitchen and storeroom should be kept scrupulously neat and the men required to clean up immediately after finishing each piece of work. Floors and tables should not be allowed to remain littered up after the necessity therefor has ceased. A piece of food left on the floor is sure to be stepped on, and will make dozens of spots instead of one. Cleanliness should be the first lesson taught.

The kitchen force should at all times present a neat, clean appearance. Especially should the cooks be clean as regards their toilet, as they are continually called upon to mix with their hands such articles as cakes, hashes, etc., and to handle nearly all food products in preparation for cooking. Men with dirty hands or untrimmed dirty fingernails communicate filth and disease germs to foodstuffs which they handle.

Each man should have definite duties assigned to him, for which he should be held solely responsible. Work must not be assigned in a general way to the kitchen force. If this is done, it frequently happens that some part of it is neglected and each man claims that he is not responsible.

No kitchen can be managed successfully unless each man knows what is expected of him. Should there be a failure on the part of anyone to perform his share of work, the responsibility should be fixed at once and punishment follow immediately.

Only those articles and cooking utensils being used in the kitchen or dining room should be kept by the mess sergeant. Other articles should be turned over to the supply sergeant so that they may be held in reserve to replace similar ones that may later become unserviceable. Moreover these surplus articles must be kept clean and this requires unnecessary labor.

Kitchens and adjoining rooms must be kept clean at all times. Such things as empty boxes and crates should not be allowed to

accumulate. They litter up the storerooms and cellars and are very unsightly.

In cleaning shelves which are located in tiers, it is always best to commence with the topmost tier and work down. Otherwise the shelves underneath will be littered in cleaning those above.

The men should not spend all their time scouring the outside of boilers, pots, and pans. Let them spend some of that energy on the inside. The parts of the kitchen utensils which come in contact with the food are the most important and should receive the first and greatest attention. See to it that the inside of meat choppers and faucets on boilers are thoroughly cleaned, that the inside of bake pans, frying pans, boilers, and dish pans are well scoured, that the tines of forks and the junction of the blades and handles of knives and steels are clean—then attack the other parts. A kitchen may look very well to a superficial observer and still be extremely insanitary.

Each dish placed upon the table should be accompanied by a knife, fork, spoon, or ladle with which to serve the food contained therein. Men should not be allowed to serve themselves using their individual knives, forks, or spoons. Such a practice is not only disgusting but is a medium through which disease is transmitted from one person to another.

In cutting meat preparatory to serving, it should be held by a fork and not the hand, and after cutting, it should be transferred from the cutting board to the serving platters by the use of forks, skimmers, or other suitable utensils. The meat should never be handled with the hands. Frequently men put their hands in the lard in removing it from the tubs. This should not be permitted. Men who do such things are usually those who do not practice personal cleanliness and must be watched carefully in order to prevent them from transmitting disease to others.

Food that is liable to deteriorate should not be purchased in large quantities. In purchasing perishable articles, such as green onions, lettuce, radishes, etc., a supply for only one meal should be bought. Such vegetables are best when first picked.

Unless flour, corn meal, and other cereals can be kept in sealed metal containers, they should be purchased in lots sufficient only for three or four days. The accumulation of a large supply is apt to

result in loss because of rats and mice. In summer fresh meat should be purchased in small quantities.

The warm weather of spring causes onions to sprout, particularly those that have been stored for some time. If not trimmed, these sprouts will sap the strength of the onion and render the vegetable useless. Cutting the sprouts helps to preserve onions. Furthermore the cut sprouts may advantageously be used in the kitchen in the preparation of soups, stews, hash, etc.

Whenever celery is served the tops should be cut off and used for seasoning. The cut tops may be placed in a paper bag and permitted to dry out. When dry they crumble like dead leaves but do not lose their strength for seasoning purposes.

Every effort should be made to keep flies out of the kitchen, dining room, and storerooms. They live and breed in places of filth where the germs of many diseases are most numerous. They light in germ-laden filth, a part of which clings to their feet and is carried away on them. The fly afterwards lights on the food and contaminates it with this filth and disease. In this way dysentery, diarrhea, typhoid fever, and other diseases are transmitted. Screening of doors and windows is absolutely necessary, and it is important to keep the screens closed whenever it is possible to do so and to keep the vicinity of the screen doors free from anything that attracts flies. Flies avoid dark places, and for that reason the dining room and kitchen should be kept darkened whenever it is convenient. When the police of the dining room is finished, it should be darkened.

All food in the kitchen and pantry should be kept covered whenever practicable, and all floors, tables, and table and kitchen ware should be cleaned after being used and should be kept free at all times possible from anything that attracts flies. Garbage stands should be kept whitewashed and the cans covered. The ground around the kitchen should be always so well policed that flies will not gather there.

Properly constructed flytraps are very effective in keeping down the flies. In camp they may be destroyed by burning out, with a torch after nightfall, the sides and roof of the kitchen tent. If the kitchen is darkened by drawing all the shades except one, which is kept raised about a foot, the flies gather on the lighted window

sill and may be easily killed. A poison that kills flies but is harmless to man is made by placing in a shallow dish a solution of 2 ounces of water, a little sugar, and 1 dram of bichromate of potash.

It is important to kill the first flies of the season. One fly in May will probably have a peck of descendants by September; therefore he should be destroyed before he can commence to breed.

Rats, mice, and cockroaches are also carriers of disease and filth and destroyers of property. Like flies, they travel in filth and carry it on their feet to everything they touch. Unlike flies, they seek dark places where germs are most numerous. A good cat is the best protection against rats and mice. Cockroaches come out after dark and may be killed with a fly swatter, and also may be kept in check by means of roach powders sold on the market.

Considerable labor may be saved by the use of a piece of canvas 6 feet wide and from 10 to 14 feet long. After each meal has been served and the utensils emptied, the canvas is spread in front of the sink and all the utensils to be washed are placed thereon. Each utensil after being washed is returned to its proper place and the canvas taken up and hung out in the air. This not only protects the floor from sooty pots and boilers but also from grease that may fall from pans and from the sink.

272. **Duties of the cooks.**—In the absence of the mess sergeant, the first cook assumes his duties and responsibilities. Acting under the direction of the mess sergeant, he is responsible for the proper preparation of the food.

The other cooks are under the orders of the mess sergeant and the first cook.

During the service of the meals the cooks remain in the kitchen and serve the food to the dining-room orderly and cooks' police, who act as waiters.

The cooks take turns in getting up to prepare breakfast and the one who prepares it may be excused from afternoon kitchen duty.

After breakfast the cook on duty sweeps out the oven, cleans the range and boilers, washes off the kitchen table, and, assisted by the kitchen police, scrubs or mops the kitchen floor.

273. **Suggestions to cooks.**—In order to work rapidly and spare himself unnecessary movements the cook should understand the recipe on which he is working. It is not necessary for him to remember all the recipes in the book. After the bill of fare is made

TOWEL RACK.

For drying clean dish towels. It is not regularly supplied, and if provided must be constructed at the expense of the company fund.

out for the day he will save time and labor by sitting down, carefully reading it over, and getting into his head the necessary plan for all the details. There is nothing gained by starting work without a well-laid plan.

The cook should think of what he is going to do, remember how he did it before, and then try to do it a little better. He should observe how others do the same thing and, if possible, try to avoid all unnecessary movements in order to accomplish the most with the least possible work.

It is necessary to have a place for each utensil and to keep it there. Articles to be used, including most of the kitchen utensils and the food being prepared, should be placed within easy reach of the cook when standing in front of the kitchen range. In this way many unnecessary steps are saved.

When preparing cake much labor is saved by collecting all the necessary articles before beginning the mixing. Place these articles on the table at which the work is to be done, and before commencing work regulate the fire in the range. This is imperative for the reason that after getting the hands in the batter there is no time to collect articles and put coals on the fire. This applies also to all dishes prepared in the kitchen.

When getting ready to baste meat the cook often opens the oven door and pulls the pan out with a jerk, splashing some of the gravy in the oven and some on the floor. The door must then be scrubbed, and the grease which has fallen in the oven will burn and permeate the kitchen with a disagreeable odor and, in addition, the pans put in the stove thereafter will be soiled because of the unclean condition of the oven. More labor is used in cleaning the pans soiled by an unclean oven than is required to keep the oven clean.

Frequently a sooty boiler or pan is placed on the kitchen table or the draining board of a sink. A spot is left which must be removed at once. This may be avoided by the use of a board or rack on which sooty utensils can rest. Such a rack can easily be made by using five pine sticks ½ inch by 1 inch by 18 inches. Place two of them parallel to each other and about 14 inches apart. Across these nail the other three at intervals of about 6½ inches. Such a rack may be hung under the drain board of the sink when not wanted and, if needed, is immediately available.

When frying on the range, grease is often spilled upon the woodwork around the stove and on the kitchen floor. These grease spots should be removed at once by the use of plenty of hot water and soap. Not attending to this immediately results in spreading grease over the woodwork and more work in the end.

Spoons or other utensils used for stirring food should not be placed on the mantel of the range or the kitchen table. A plate should be placed on the table or mantel for the spoon to rest in. When a spoon or fork is taken from food on the stove a cloth should be held under it to catch the drippings.

In cutting meats good results can be obtained only by the use of sharp cutting utensils. Satisfactory and rapid work can not be accomplished with dull knives. The thumb should be held against the back of the knife, as this lessens the fatigue of the wrist and enables one to work more rapidly than if the thumb clasps the knife. Each kitchen should be provided with a good grindstone.

The plate and knife of the meat chopper should be kept closely together by means of the ring nut. If this is not done, particles of meat will edge in between the knife and plate and cause a ragged tearing of the meat. Often men loosen the ring nut with the idea that the handle can be more easily turned. Such is not the case, however, as the particles of meat torn off clog the chopper.

In trimming fat from meat no lean meat should be cut off with it. While rendering, the lean meat yields nothing but water and consequently becomes a total loss. In this regard it is better to allow some of the fat to remain on the meat, for during the cooking of the meat the drippings are caught in the pan and enrich the gravy prepared with the meat, or are skimmed from the stock in which the meat is boiled.

Gravy should be prepared in the pan in which the meat has been cooked. Some of the albuminous substances escape from the meat in the process of cooking and settle on the bottom of the pan. These add a flavor to the gravy that is not obtained if the drippings are drained into another pan and the gravy made in the latter. To the particles escaping from the meat should be added sufficient beef stock and flour to make a gravy of the proper consistency. During preparation, the gravy should be frequently stirred with a whip, in order to loosen the particles from the bottom of the pan. Where

the meat cooked is very fat, excess drippings should be drained from the pan before the gravy is made.

If several pans are used for roasting, after the meat has been removed the drippings should be poured into one pan. Into the emptied pans should be poured either beef stock or hot water, which when brought to a boil and agitated with a wire whip will loosen the meat residue left on the bottom of the pans during roasting.

As a general rule food should be seasoned during the process of cooking. Cooks must be careful in the use of salt, especially in preparing hashes, meat balls, and stews from food that has been left over. The left-overs are from food which has previously been seasoned and, unless great care is taken, dishes subsequently prepared from them will be too salty. It must be borne in mind that it is better to put in too little salt than too much, because more may be added to the food in the dining room according to taste.

Buns and rolls for supper are usually baked by 1 p. m. They are then spread on tables to cool, a process that ordinarily does not require more than one hour. If they are left exposed until 5.30 or 6 p. m., they become hard and partly dried out. If, however, after being cooled, they are placed on their sides in a tightly closed boiler, they will remain soft and nutty, not only for supper but for the following breakfast. Not more than three tiers of buns or rolls should be placed in a boiler.

The following suggestions regarding the cooking of vegetables will be found useful:

(*a*) Cook green vegetables rapidly in boiling salt water, the time allowed depending on the vegetable cooked. All vegetables should be carefully drained after boiling.

(*b*) It is a good rule to use only enough water to cover the vegetables. If it evaporates, add more boiling water. Sulphurous vegetables, however, should be well immersed in water, otherwise they will be tough and discolored and their flavor changed.

(*c*) Vegetables are best when freshly gathered. If slightly wilted, soak them in cold water. Even when not wilted such soaking improves them, as it renders them more crisp and palatable. Onions, cabbages, and cauliflower, if soaked for one hour before cooking, are less objectionable in odor.

(*d*) Onions, cabbages, and cauliflower should be boiled in an uncovered pot and the water changed at least once while cooking. A pinch of soda may be added to the water.

(*e*) Beans and peas should be strung or shelled and washed quickly If cold water is allowed to stand on them very long, it removes much of their nutrtious quality.

(*f*) Care must be taken not to break the skins of beets, as much of the coloring matter will escape in cooking.

(*g*) Carrots should be scraped and turnips pared before cooking. Both should be sliced thin.

(*h*) After husking green corn all the silk should be removed from the ears. Corn should not be washed. It should be eaten the day it is pulled.

(*i*) Young potatoes should be scraped and old ones peeled. If boiled potatoes, after draining, are allowed to remain on the range a few minutes, with the lid off the boiler, their flavor will be much improved.

(*j*) Spinach should be thoroughly washed in several waters to insure the removal of the grit. After cooking, drain in a colander and dress with melted butter, pepper, and salt.

(*k*) Insects are likely to gather in the hearts of cabbages. If the heads are to be cooked whole, put them in the water head down to remove the insects.

(*l*) Small parsnips may be cooked whole; if large, they should be cut lengthwise. To keep the flesh from darkening, remove all specks and trim off the fine roots.

Personal cleanliness of cooks is of the greatest importance. A bath should be taken daily, especially in the tropics. The following system has been found satisfactory: After breakfast, work is begun on that part of the dinner which demands immediate attention, or which litters up the kitchen in the course of preparation; and as soon as the dinner is ready to put on—about 8 or 8.30 a. m.—the first cook takes a bath and changes his clothes. His underwear—especially in the tropics—should be changed at this time. As soon as the first cook has returned—about 8.30 or 9 a. m.—the second cook goes for his bath and returns half an hour later.

274. **Cooks' clothing.**—Each cook should be provided with the following clothing:

Four white coats.
Six pairs white trousers.
Four white skull caps.
Twelve white aprons.

When serving in the tropics or when the climate is such that the coat is not worn, cooks should be required to appear at all times in white undershirts. They should not be allowed to enter the dining room at meal time without wearing a white coat.

275. **Duties of the dining-room orderly.**—He should be detailed monthly. He is under the orders of the mess sergeant, and is held responsible for the cleanliness of the dining room and pantry and for the dishes and utensils used therein.

Upon assuming charge, the mess sergeant will verify with him all the dishes and other equipment for which he will be held responsible. A strict account is kept by him in a book provided for the purpose of all the breakage that occurs and he reports to the mess sergeant the names of the men responsible for the breakage. Upon being relieved, all breakage unaccounted for is charged against him.

He reports at the dining room not later than 10 minutes before mess call. He then cuts the bread into thin slices and piles it neatly upon plates, one of which is provided for each table. During the service of the meal he remains in the bread room, cuts the bread, and gives it to the waiters as they call for it. Toward the end of the meal he should be careful not to issue more than he thinks will be used. After each meal he gathers up the food left on the platters and returns it to the kitchen for future use.

Slices of bread not consumed are piled as closely as possible to prevent the exposure of the crumb to the air and consequent drying out. They are placed in the bread box and served first at the next meal. Crumbs of bread accumulating in the pantry and bread box are saved and disposed of by the mess sergeant.

He takes charge of all work in the dining room and, assisted by the cooks' police, clears the tables after each meal. He then brushes off the tables, scrubs them with hot water and soap, rinses them with clean water, and dries them. He then cleans the saltcellars, pepper-boxes, vinegar cruets, mustard pots, and sugar bowls and fills them for the next meal.

After breakfast he places the stools on the tables with legs up, sweeps and mops or scrubs the dining-room floor, using but little water, and carefully dries it. After dinner and supper he sweeps the dining room. As soon as the floor is dry he sets the tables and aligns the stools in their proper places, being careful to make the tables present as clean and neat an appearance as possible.

He dusts off the woodwork and radiators each morning, and if necessary uses soap and water to remove any dirt that has accumulated.

He keeps the pantry neat and clean and all surplus dishes neatly arranged upon the shelves.

He is responsible for the cleanliness of the dishes and silverware, and sees that plenty of boiling water, heated on the top of the range, is provided for rinsing them. Water from the reservoir is not hot enough for rinsing dishes.

Each Friday he gives the pantry and dining room a thorough cleaning, washing the stools, windows, bread boxes, shelves, and all surplus dishes and tableware. After scrubbing, the bread box should be dried and sunned for an hour or more.

If sirup is to be served for breakfast, he sees that the pitchers are filled on the preceding evening. If butter is to be served, he gets it ready for the table, but in warm weather he does not take it from the ice box until the meal is about to be served.

276. **Duties of the cooks' police.**—They are under the orders of the mess sergeant and the cook in charge and report to the mess sergeant not later than 10 minutes before mess call.

They serve all meals under the direction of the mess sergeant and wait upon the tables at meal time.

One of the cooks' police washes the kitchen utensils and the others assist the dining-room orderly in clearing the tables. The cooks' police and dining-room orderly then wash the dishes and knives, forks, and spoons, the work being under the charge of the dining-room orderly.

The knives, forks, and spoons are placed in a dish pan with plenty of hot water and left until all the dishes have been washed. They are then washed clean, scalded with boiling water (to which a little soap is added), and carefully wiped with a dry, clean towel.

Dishes are washed in the sink or a dish pan, using plenty of soap, well dissolved and beaten into suds. In order to dispose of the cleaner and less greasy articles first, they are washed in the following order: Cups, saucers, plates, and other dishes. After washing, dishes must be scalded, either by placing them on edge on the drain board and pouring hot water over them, or, if the drain board is too small for this, by dipping them in a pan of hot water. Good results are obtained

only by using plenty of soap in the dishwater and clean, hot rinsing water and plenty of clean, dry towels.

After washing the breakfast dishes, all soiled dish towels are placed in a boiler of hot, soapy water and boiled for 30 minutes. They are then washed (preferably on a washboard), rinsed, and dried. After dinner and supper the towels used in wiping the dishes are washed out in hot water and soap, rinsed in clean water, and dried.

After putting the dishes away the cooks' police will clean the sink and sweep and mop the floor. They then report to the mess sergeant for such work as may be assigned them—peeling potatoes, carrying coal, washing windows, etc.

When the services of the cooks' police can be spared for this purpose, the mess sergeant may direct them to assist the dining-room orderly in mopping out the dining room and washing the tables.

The cooks' police will not absent themselves from the kitchen except by authority of the mess sergeant or the cook in charge.

277. Care of equipment.—*Bake pans* should never be scraped or scoured, as this removes the bronze or bluing. They should be washed with soap and water, wiped dry, and hung on the back of the range with S hooks.

Boilers.—Each time boilers are used, except for boiling water, they should be scoured out with Sapolio or wood ashes, thoroughly rinsed with clean water, dried, and sunned.

Boilers for coffee.—They should be scoured with wood ashes or Sapolio once each day. Many cooks remove a portion only of the coffee grounds after each cooking, always leaving a portion in the pot. Good coffee can never be made in this manner. All the strength is not extracted at the first cooking, and it is best to allow the grains to accumulate in the boiler for three meals (unless tea is used for one meal of the day, in which case the coffee should not be carried over), and then remove the entire lot. Although there is some waste of coffee by this method, it is a great deal better than any other and the coffee is always good.

HEAT SURFACE ARMY RANGE NO. 5.

The No. 1 eye gives off the greatest radiation of heat; the No. 2 next; Nos. 3 and 3a, and 4 and 4a, next; and Nos. 5 and 5a the least. It is very important that cooks understand the heat surface of the range they are working over. Articles to be boiled should be placed on the No. 1 eye. Should it be desired to have these simmer, the boilers must be removed to eyes No. 5 or 5a. Old tough meat, which requires a long slow process of cooking, can here be simmered until cooked, without fear of burning. For a moderate heat eyes 3, 3a, 4, and 4a can be used to advantage. Stewing requires a gentle heat, applied a long time. By this process the coarsest kinds of meat can be made tender when allowed to simmer on the No. 5 eye, with even a moderate fire in the range.

Dining-room floors.—They should be swept after each meal, mopped out each morning, and scrubbed once or twice each week.

Dining-room tables.—They should be scrubbed after each meal with soap or Sapolio and hot water. In this way stains can be removed with less labor and scouring material and the tables kept in better condition than if scrubbed once a day.

Dishes, tableware, etc.—See duties of dining-room orderly and of cooks' police.

Jars for yeast.—As soon as the jar becomes empty scour with sand and hot water. Rinse well and half fill with boiling water. Cover tightly and allow it to stand for an hour. Empty it and it is ready for use. Soap, lye, or Sopolio should not be used for cleaning the jar. If portions of these are left in the jars they are likely to injure the yeast.

Kitchen floors.—The flushing of floors is prohibited by Army Regulations, but they should be thoroughly scrubbed each morning. Whenever a grease spot appears on the floor it should be scrubbed out, using the scrubbing brush and plenty of soap or lye. After

dinner and supper the floors are mopped. Always sweep the floor thoroughly before mopping or scrubbing. In scrubbing use one-half pound of soap dissolved in from 6 to 10 gallons of boiling water. In larger kitchens from 10 to 15 gallons of the soap-and-water mixture may be required. Dip the brush in the mixture, scrub quickly, and dry with a mop, which should be constantly rinsed in clean water. When a patent wringer is available, about three ounces of lye should be used with a half pound of soap. The lye injures the hands if mops are used without the wringer.

Kitchen tables.—They should be scrubbed with soap and water after each meal. Boiling linseed oil should be well rubbed into them once in each two or three months.

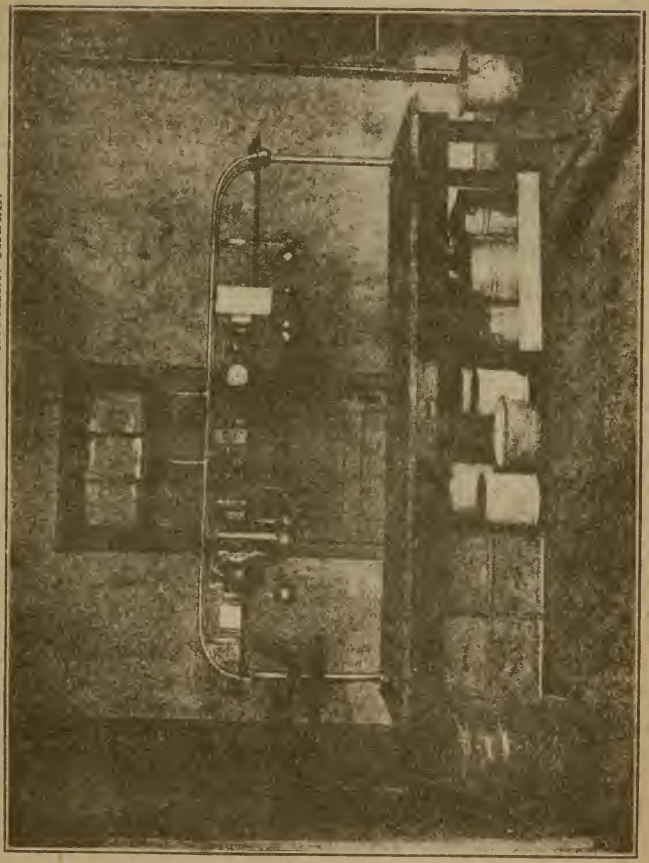
Range.—Each morning before cleaning the kitchen, sweep out the ovens and rub off the range with a greasy cloth. A greasy cloth applied daily keeps the range in better condition than stove polish applied once a week. Once a week the range should be thoroughly cleaned out. To do this, remove the top and sweep off the oven, protecting the casing plates. Remove the soot by a scraper through the flue doors. The mantel should be wiped often with a damp cloth and when necessary washed with soap and water. This prevents dishes from picking up dirt and grease and thus soiling the tables.

Scales and weights.—They should be wiped off with a greasy cloth to prevent rusting.

Small tinware, etc.—Tin, zinc, and galvanized ware should be cleaned with soap, Sapolio, or ashes and kept in their places when not in use. Small tinware that is in constant use should be scoured at least once a day, dried, and kept in a dry place.

Stools.—They should be wiped with a clean damp cloth after each meal and should be washed with soap and water each week.

278. **Serving the meal.**—A meal, however well prepared, must be served properly to give satisfaction and to prevent unnecessary waste. This requires a system by which everything is brought on the table hot or cold, as intended. All of the tables must be served promptly and in an orderly manner. This requires every man of the kitchen detail to perform properly the particular duties assigned to him.



A CONVENIENT TYPE OF ARMY KITCHEN TABLE.

Five minutes before mess call the coffee (or other beverage), bread, and soup must be placed on the mess tables (the soup in 1-gallon tureens to tables of 10 men) and the salad and dessert on the bread table.

The dinner is now ready, and the mess sergeant goes into the dining room to superintend the service. The cooks remain in the kitchen and serve the food to the waiters as they come for it.

The food, after being cooked, must be arranged on clean platters, vegetable dishes, etc. The outside of these dishes must be kept clean and all drippings of sirup, gravy, etc., removed from them.

The table must be set with care and kept scrupulously neat. Order in the dining room and conduct at the table are influenced by the care with which arrangements are made for the reception of the men.

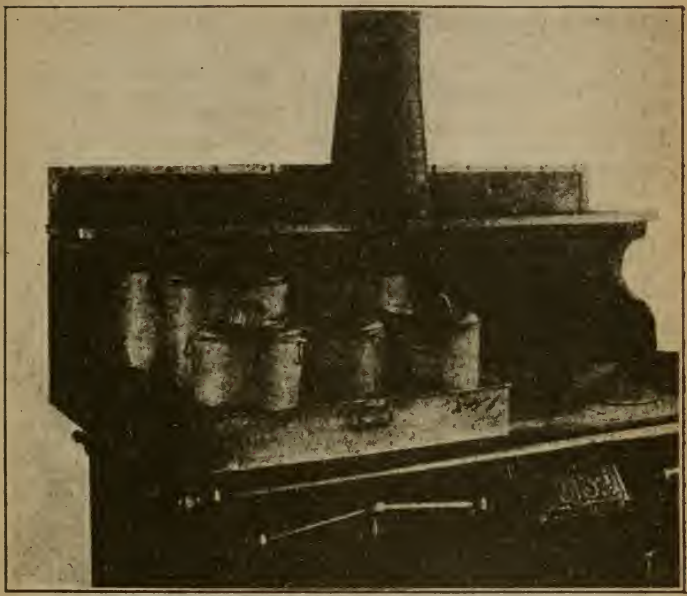
All the men at each table must finish their soup before the remainder of the meal is served at that table. The mess sergeant not only superintends the service, but personally assists and sees that all are served properly and without delay or confusion.

It often happens that while those at the first tables served are ready for dessert, those at the other tables are in the midst of the meal, or possibly still eating their soup. Constant supervision is therefore necessary to see that the service is prompt and orderly.

As the men finish at each table it is cleared off, the food left being transferred to other tables or returned to the kitchen, and the dishes placed in the sink for washing.

When all have finished their dinner the food still remaining on the serving trays is returned to the kitchen and the bill of fare is made out for supper, care being taken to use, if practicable, all the food left over from breakfast and dinner. At the same time the bills of fare are prepared for breakfast and dinner for the following day. The waste collected from the plates should not fill more than a quarter of an ordinary bucket. The men should be given all they will eat, but should not be permitted to take on their plates more than they are going to eat. Each man may help himself as often as he likes, but waste of food must be met with prompt punishment. After a few punishments there will be no further trouble. The men will see the benefit derived from careful management and economy and will appreciate the good results they themselves have helped to obtain.

WARMING DEVICE.



For keeping articles of food hot and in shape to serve for hours; or for slow cooking after the food has been brought to the boiling point. Lima beans, stews, soups, coffee, sauces, etc., should be lifted from the range when they have come to a boil and set in the large pan, which should contain about 1 inch of boiling water. Tough steaks and cooked meats may be kept in boilers set in the pan for hours to great advantage, as the action is practically the same as that of a fireless cooker. The warming device is not supplied to troops and must be purchased from the funds if desired. The same principle may be applied by using a dish pan and a jar or small boiler.

Of great use in the preparation of small doughs in cold weather, or in windy kitchens. A pan of steaming hot water may be placed on the bottom shelf to secure a proper temperature.

Chapter VI.

FIELD COOKING.

279. **The regulations** require that on the march, in concentration or maneuver camp, or in the field, the savings privilege be suspended and the troops subsisted on the ration in kind. It is also provided that the commanding officer will designate the ration to be issued to the troops, but that it shall not exceed the amount of any component authorized in garrison.

To prevent waste there must be even closer supervision in camp than in garrison, especially when the individual mess kit is used. Each man is served from the issuing table and the general tendency is to issue too freely, the men taking away more than they will eat. The food left on the mess kit is wasted. The mess sergeant should closely supervise this issue and insist that the cooks and the dining-room orderly use care and judgment when serving. Through close observation the mess sergeant and the cooks may learn the proper portions for each individual.

280. **In permanent camp.**—The conveniences of a long-established camp gradually approach those of garrison, and where careful supervision is exercised, troops fare well. The savings privilege is often granted by special authorty of the War Department to troops serving in permanent camp. Fresh beef may be supplied regularly and the bills of fare are much the same as in garrison. The dining-room arrangements are more simple and the kitchen work is greatly reduced because each man looks after his own individual mess kit.

With the improvised bake ovens mentioned herein, plenty of rolls, buns, and biscuits can be baked.

Flies are a pest in warm weather and in all camps of the least degree of permanence, the kitchen and dining room should be screened. When this is not feasible, a screened cage may be made in which to keep the food. Coal oil should be freely used about the

refuse cans to keep away flies and destroy their larva. The field expedients mentioned later are especially useful in permanent camp.

281. **In temporary camp.**—In a temporary camp—of from 5 to 10 days—the cooking is very much the same as in permanent camp. Meals are served to the men in the same manner and the same care must be exercised in the prevention of waste. In hot or wet weather a fly should be stretched over the range and the rations carefully protected. Frequently the escort wagon in which the rations are carried may be used for the storage of mess supplies, and a tent fly should then be put up for the protection of the cooks and food before issue. When possible a wall tent and fly should be used in place of the arrangement just indicated.

Though not absolutely necessary where the range is supplied, an excavation should be made in windy weather for the protection of the fire when an open grate is used. A pit 1 foot deep, with the additional protection afforded by the earth thrown upon the sides, will be ample.

282. **On the march.**—The savings privilege is suspended and the ration is designated by the commanding officer. The regulations require the issues to be made daily. The table given in paragraph 197, showing the quantities of the component and substitutive articles allowed from 1 to 1,000 rations, will prove invaluable.

The quartermaster of the troops should, if practicable, arrange in advance for the supply of fresh meat and bread along the route. If it can not be done, such quantity of fresh meat, dependent upon the weather, as can be carried without danger of spoiling, should be taken along.

Several days' supply of fresh bread may be carried under favorable conditions. A field bakery unit and personnel may be attached to a command the size of a regiment.

The above measures insure the two most important components of the ration for a few days, but bacon, canned meats, hard bread, and dried vegetables must be used on the march almost to the exclusion of these more bulky components. Dried vegetables and canned goods are convenient on account of their small bulk and the ease with which they can be transported.

There is little time in the morning to prepare breakfast and no attempt should be made to have a great variety. A few com-

ponents, good and substantial, including plenty of coffee, are about as much as can be provided. Upon arrival in camp it is necessary to get a quick meal, as the men are usually tired and hungry. The idea is to have something prepared quickly as a lunch. A fire should be started at once to heat water for coffee, which, with some form of canned meat and bread, is sufficient. Then, while the company is making camp the cooks have ample time to prepare the main meal of the day, which is usually served in the late afternoon.

The following bill of fare is suggested as an example of what might be prepared for one day on the march:

BREAKFAST.

Fried bacon or beefsteak, boiled potatoes, bread, and coffee.

LUNCH ON ARRIVAL IN CAMP.

Canned corned beef or fried bacon or canned salmon, cold canned tomatoes, hard or fresh bread, and coffee.

DINNER.

Soup, boiled or roast beef, or other boiled or roasted meat, mashed potatoes, peas, corn or succotash, bread, and coffee.

The improvised fireless cooker described in this chapter has been used to advantage on the march.

283. **In campaign.**—Troops subsist on the field ration. This ration is prescribed in orders by the commander of the field forces, and consists of the reserve ration in whole or in part supplemented by articles of food procured locally or brought from the rear. It is contemplated that sufficient articles of food will be added to make this reserve ration equal the garrison ration, when practicable.

The arrangements for messing are dependent upon conditions and subject to many changes. These may approximate the arrangements in permanent camp or on the march where the company messes as a unit or the men may be required to cook individually, as when on patrol or in the presence of the enemy. It is best as a measure of economy and health to prepare the food for the organization as a whole rather than to issue it out to individuals or groups. Experience proves that the organization fares best when all members are present and the ration is handled by experienced men. This

applies to the present field ration more than to any previously authorized.

The bills of fare will be simple and the mess sergeant and cooks are compelled to use their utmost ingenuity to provide a variety. It is considered impracticable to suggest a bill of fare for the field, because the ration varies at different times from the reserve to the full garrison ration.

FIELD RANGES.

284. The Army field range No. 1, complete, as described herein weighs approximately 264 pounds with utensils, and with the addition of the Alamo attachment is designed to cook for 150 men. It consists essentially of two parts, viz: the oven No. 41 and the boiling plate. The boiling plate has three sections, No. 42 and two other parts, forming the Alamo attachment No. 42A and 42B.

To pack the utensils and range for transportation, place the bake pan No. 52 on the ground. Set boiler No. 50 inside of bake pan No. 52; boiler No. 51 inside of boiler No. 50. Place tent guards inside of boiler No. 51 on bottom. Telescope the 4 joints of pipe. Inside of the pipe place 2 forks, 3 knives, 1 sharpener, 1 cleaver, and 2 folding lanterns. Place joints of pipe containing utensils inside of boiler No. 51. Place meat chopper in boiler No. 51 alongside of joints of pipe. Place 2 basting spoons, 1 meat saw, and 1 skimmer in boiler No. 51 on top of pipe. Cover with lid No. 51, then No. 50. Place bake pan No. 52 upside down over lid No. 50. Care should be taken that bake-pan handles are well down to sides of the pan. Nest 4 boilers Nos. 48, 49, 53, and 54, No. 48 outside. Place stovepipe elbow in No. 54. Place dippers alongside of elbow. Place covers Nos. 54, 53, 49, and 48 on boilers in order named. Place nested boilers Nos. 48, 49, 53, and 54 in rear end of oven. Place bake pans and nested boilers in front end of oven. Close the oven door and lock with damper lock. Place 42A on left front corner of oven Nos. 41 and 42B on right front corner, inserting bar in crimp. This bar now rests against the pipe collar and prevents sliding. Place boiling plate No. 42 on top of range, eye fitting over stovepipe flange and engaging under the flat hook. Make secure by fastening hook on front of boiling plate to the lug on back of range. The range is now secure for transportation.

285. **Installing the range.**—(See par. 295.) On the march the range is ordinarily set up by simply leveling the ground selected and placing the oven No. 41 and boiling plate No. 42 side by side, so that the oven door and fire-box door will be at the same end. Draw in 42A and 42B and secure bar-lock. Insert 42A into 42 and rest 42B snugly on the angle iron on the rear of the range. The oven should not be banked, as this would cause the sheet iron along the sides to warp and finally burn through. Sufficient earth, however, should be tamped along the sides and closed end to prevent the passage of gases beneath. This earth should not extend above the straps along the sides and under the oven door.

When used for one day only it will be unnecessary to dig a trench, but if a few shovelfuls of earth are removed from the place to be covered by the boiling plate it will facilitate firing. The best results are obtained by using short wood—keeping the fire well toward the firing end of the boiling plate—or, if using long sticks and branches, pushing them under the boiling plate as they are consumed.

286. **Trenching.**—If the range is to remain in place for several days, prepare trench as shown in par. 295.

287. When the range is set up on different ground daily no difficulty will be experienced in obtaining the proper temperature in the oven, both for top and bottom heat. Whenever it remains for a longer time than one day in the same spot, the ground will become dried out and hot, and it may be necessary to elevate the bake pans slightly above the floor of the oven, thereby leaving an air space under the pans. This can be done by the use of angle irons or other means. Never use earth or sand on the bottom of the oven chamber, for by so doing a hole will soon be burned in the bottom plate.

To install the range on a railroad car or on a wooden floor, see paragraph 316.

288. **Brick fire box.**—The trench may be eliminated by installing the range on a brick wall about 8 inches thick and 3 bricks high. Set up the range temporarily and mark on the ground the outline of the oven, Alamo attachment, and boiling plate. Build the wall on the outline and on the line between the oven and boiling plate, the wall extending about 4 inches on each side of the outline, so that the base of the range will rest on the center of the wall. Then set up the range on the wall and fill up with earth or brick the space

under the oven, except about 6 inches at the rear end. Bank the outside of the wall with earth.

In a permanent camp (see par. 296) it is frequently necessary to evaporate waste under the range and to consume the garbage by the same fire. In this case dig a pit about 4 feet long, 3½ feet wide, and 2 feet deep, to give a reservoir for waste water. Fill the pit with cobblestones, leaving a fire box and a gas chamber under boiling plate and Alamo attachment as suggested for temporary installation. Place a length of stovepipe or any kind of chute at a convenient place anywhere along the side of the oven, arranging the rocks on which it rests so that there will be a free passage for the water. Pour in the waste water as it accumulates, retaining all solid matter with a wire screen. The solid matter is burned in the trench under the boiling plate, a little at a time, after the meal has been prepared.

289. **Reassembling for transportation.**—When reassembling for transportation, draw boiling plate No. 42 forward. Unfasten bar lock, pull apart, and remove 42A and 42B and proceed as indicated above.

290. **Remarks on handling the range.**—If properly installed, the oven will not be too hot on the bottom for ordinary baking, owing to the fact that the fire does not strike the range proper. A tin will be found inside the baking chamber, which may be used if for any reason the bottom of the oven is too hot. Should the bottom of the oven be too cold for efficient baking the tin should be removed. Articles brought to a boil on the boiling plate will continue to simmer if set on top of the oven or if placed alongside the oven. In this manner a dinner has been prepared for an entire battalion by adding the necessary utensils. A little care and judgment are necessary to secure satisfactory results.

Coal should never be used when wood is obtainable. If possible, even when coal is used, part of the fuel should be wood, for the use of coal alone will quickly destroy the range.

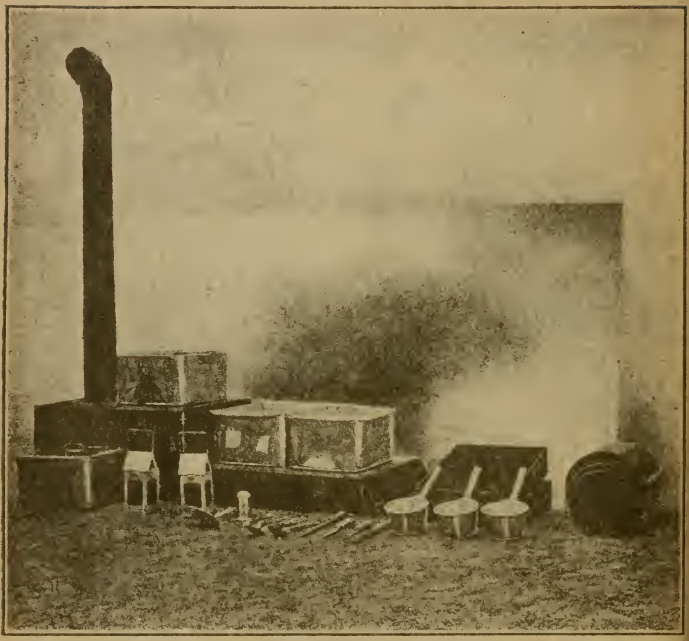
In permanent camp the space above and on the sides of the oven and the stovepipe should be cleaned at least once a week. This also applies to the boiling plates. The range, boiling plates, and pipes should be coated with a mixture of sugar and grease. This preservative prevents rust and gives a neat polished appearance to the range.

291. **Army field range No. 2.**—The Army field range No. 2, complete, weighs about 150 pounds with utensils and is designed to cook for 55 men. This range is without the Alamo attachment. It consists essentially of two parts—the oven, No. 61, and boiling plate, No. 62. For transportation the boiling plate is placed on top of the oven and the utensils (with flue) packed within the oven chamber.

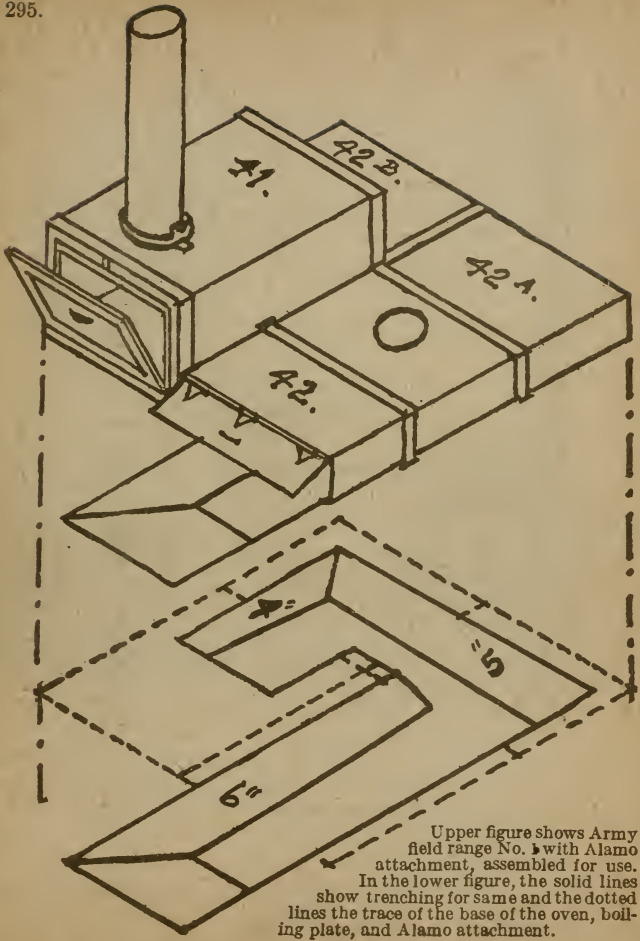
292. **This range is installed** in accordance with the principles explained for army field range No. 1. It has no Alamo attachment and the boiling plate is attached, end to end, to the rear of the oven, the projecting collar of the boiling plate being slipped into the space cut from the rear end of the oven for that purpose. (See Par. 294). The trench is dug under the boiling plate and extends about three inches under the rear end of the oven.

293. **To pack utensils and range for transportation** place bake pan No. 52 on the ground. Set boiler No. 50 inside of bake pan No. 52; boiler No. 51 inside of boiler No. 50. Place tent guards on bottom of boiler No. 51. Telescope the 4 joints of stovepipe. Inside of pipe place 2 forks, 2 knives, 1 sharpener, 2 spoons, 1 lantern (folding), and 1 skimmer. Place the joints of pipe containing utensils in boiler No. 51. Place dipper and elbow alongside the pipe. Place meat saw in bake pan No. 52 alongside the boilers. Cover boilers with lids No. 51 and No. 50. Place bake pan No. 52 upside down over lid No. 50. Place pans in the range oven. Place the boiling plate at the door end of the oven. Engage the flanges on the inner side of boiling plate with the lugs on the door end of the oven. Fasten the hook on boiling plate (firing end) to lug above the handle on the closed end of oven. The range is now secure for transportation.

294. ARMY FIELD RANGE, WITHOUT ALAMO ATTACHMENT.

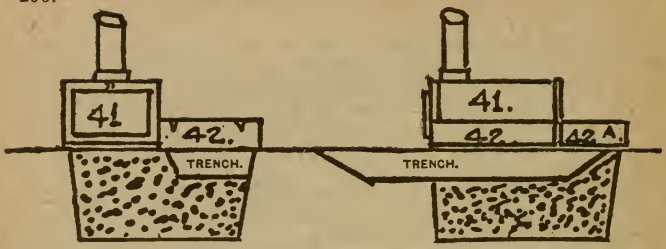


295.



Upper figure shows Army field range No. 1 with Alamo attachment, assembled for use. In the lower figure, the solid lines show trenching for same and the dotted lines the trace of the base of the oven, boiling plate, and Alamo attachment.

296.



Army field range No. 1 with Alamo attachment, trench, and cobblestone pit (2 feet deep) for incineration of waste.

EQUIPMENT A.

297. It consists of the following utensils:

1 cake turner.
1 can, water, G. I., large.
1 can, water, G. I., small.
1 cleaver, meat.
1 dipper, large.
1 fork, meat, large.
1 fire-iron set.
3 kettles and covers, camp.
1 knife, meat, large.
4 pans, bake.

This is the allowance under existing orders of cooking utensils where transportation is limited.

FIRELESS COOKERS.

298. **A fireless cooker** is an air-tight receptacle for the slow preparation of partly cooked food by heat stored up in the food, or mechanically introduced as when soapstones are used. It is also used to preserve the temperature of food cooked or uncooked.

It is generally a box-like arrangement lined with a nonconducting material within which is the well or reservoir, into which the vessel containing the hot food is placed.

Many different makes of fireless cookers are found on the market, and various material such as asbestos, paper felt, hay, indurated fiber, etc., are used as nonconductors. In some types heated soapstones are placed in the well to keep the food at a cooking temperature for long periods, or to supply the heat ordinarily given to the food before it is placed in the cooker.

To cook food requires the application of a certain amount of heat at a temperature between 130° and 385° F. (in the case of fireless cookers, between 130° and 212°) though the lower the temperature the longer the process will be.

The object of a fireless cooker is simply to use the heat above 130° F. which has been stored in the food to finish cooking it.

The advantages are: The food may be served warm on the march or upon arrival in camp; it saves fuel; being a slow process it renders such food as tough meats tender and palatable; and the food, having been placed in the cooker, requires no further attention.

To prepare food for cooking in the fireless cooker the general idea is to place food on the range and when sufficient heat has been stored up in it, to transfer the food directly to the cooker where cooking will continue as long as the temperature remains above 130° F.

By experience the following times of cooking have been ascertained:

Articles of food.	Number of minutes at boiling point before putting in cooker.	Number of hours in the fireless cooker.
Beef á la Creole	45	6
Beef á la mode	45	3
Beef, corned	45	3
Beef, curry of	20	3
Beef, roast, soft	45	3
Beef, Spanish	20	3
Beef, Turkish	20	3
Beans, Boston baked	60	12
Beans, lima	45	3
Beans, kidney	90	6
Beans, string, green	30	2
Cabbage, with bacon	20	3
Cabbage, Bavarian	20	3
Cabbage, with fresh pork	45	3
Carrots, boiled	20	3
Chicken á la Creole	45	6
Chicken, curry of	45	4
Chili con carne	30	3
Codfish, creamed	15	2
Ham, boiled	45	4
Mutton, stew	20	4
Parsnips	30	3
Pork, fresh boiled	60	4
Potatoes, Irish	15	2
Potatoes, sweet	20	2
Sauerkraut, with bacon or salt pork	45	3
Succotash	20	3
Tomatoes, stewed	20	1
Turnips, boiled	60	3

NOTE.—Meats should not be cooked in pieces weighing more than from 3 to 5 pounds.

To get the best results, most articles of food to be cooked should be covered with liquid when put in the cooker. Such vegetables as

potatoes, parsnips, etc., should be about half cooked, the water drained off, and then put into the cooker. The vegetable is then allowed to finish cooking with its retained heat, remaining in the cooker for a few hours only.

A considerable amount of acid is found in tomatoes, and dishes containing them should not be permitted to remain in the fireless cooker or other tin receptacles for longer than four or five hours. Coffee should be first prepared by boiling in a sack in the regular boiler so that the grounds need not be placed in the cooker.

299. IMPROVISED FIRELESS COOKER.

Most satisfactory fireless cooker yet devised, which is a milk can placed within a water or ash can with hay or straw packed in between. In camp the large cans are used for water and the small ones for cooking, so that no unnecessary impedimenta is carried.

The type of fireless cooker shown has proven as efficient as any on the market and more convenient for field service. Those on the market are too heavy and bulky for field use and are not popular in garrison.

Used as an improvised cooker, two of the water cans and two 10-gallon milk cans will provide one meal of coffee and hot beans or beef stew for 80 men. Eight of these cans will supply lunch for about 300 men and, when loaded on an escort wagon, leave sufficient room for rations and equipage.

The food can be prepared at the same time the cooks are preparing breakfast and placed in the cooker, which is loaded on the wagons, so as to be readily accessible when needed.

300. ROLLING KITCHENS.

There are several types on the market. Most of them consist of ranges or boilers mounted on running gears of carts or wagons, so that the cooking may be done while the kitchen is in motion. Many are also provided with separate wells or compartments constructed on the principle of the fireless cooker, in which the food, already cooked, may be kept warm.

These rolling kitchens or soup wagons are a great convenience to troops on the march or on the firing line, but considering the amount of transportation and road space they require, it is doubtful if they should be used except under special conditions, as where troops are occupying a more or less stationary firing line.

301. INDIVIDUAL COOKING.

Weights and measures.—It will often be necessary to issue rations to men individually where there are no scales available. The ordnance cup will be found very convenient for determining weights under these conditions. The new regulation cup holds 1½ pints; the old cup holds seven-eighths of a quart.

One cup level full of—	New cup.		Old cup.	
	Pounds.	Ounces.	Pounds.	Ounces.
Apples, evaporated		7		8
Beans, chili	1	4	1	7
Beans, issue	1	6	1	8
Beans, kidney	1	3	1	5
Beans, Lima	1	3	1	5
Bread crumbs		13		15
Coffee, R. & G		9		10
Coffee, Java, ground		14	1	
Coffee, Mocha, ground	1		1	2
Corn, sweet, dried		14	1	
Corn meal	1	2	1	4
Currants	1	5	1	8
Eggs, broken	1	11	1	13
Flour		14	1	
Hominy	1	2	1	4
Milk, fresh	1	9	1	12
Oat meal		8		9
Peaches, evaporated		14	1	
Peas, dried	1	5	1	8
Prunes		14	1	2
Raisins		14	1	
Rice	1	5	1	8
Salt, coarse	1	11	1	15
Salt, issue	1	12	2	
Sirup, cans	2	2	2	7
Sugar, cut-loaf		14	1	
Sugar, granulated	1	4	1	8
Tea, English breakfast		5		6
Tea, Oolong		6		7
Tea, Young Hyson		9		10

One 3-gallon bucket of potatoes weighs 17 pounds, when peeled they weigh about 15 pounds.

One 3-gallon bucket of onions weighs about 14 pounds, when peeled they weigh about 11 pounds.

Six issue candles weigh about 1 pound.

Ten lantern candles weigh about 1 pound.

One bar of issue soap weighs 1 pound.

302. Company commanders, in estimating the amounts that will be required for each meal, may assume that one man will consume for one meal about—

1 ounce of sugar.
$\frac{1}{2}$ ounce of coffee, 1 ounce chocolate or cocoa, or $\frac{1}{10}$ ounce of tea.
4 ounces of dried vegetables, or 8 ounces of fresh vegetables.
4 ounces of flour or 4 hardtacks.
4 ounces of sliced bacon or 6 to 8 ounces of fresh meat.
$\frac{1}{8}$ ounce of salt.
$\frac{1}{30}$ ounce of pepper.

303. For such individual cooking as may be necessary for the soldier when thrown upon his own resources, the following bills of fare have been prepared. Where the tin cup and spoon are mentioned, reference is made to those issued with the field mess kit.

The best fire for cooking is a small clear one, or a few brisk coals.

Almost any article of food can be cooked in some way in the mess kit, though the methods of cooking are few and the quantities that can be cooked are small.

Bills of fare.

	Meats.	Vegetables.	Bread, etc.	Drinks.
1	Bacon	Boiled rice	Flapjack	Coffee.
2	Meat and vegetable stew		Flapjack	Coffee.
3	Broiled steak	Fried potatoes and onions.	Hard bread.	Cocoa.
4	Bacon	Stewed tomatoes	Hoecake	Coffee.
5	Bacon	Oatmeal	Hard bread.	Tea.
6	Bacon	Baked potatoes, rice	Flapjack	Chocolate.
7	Fried steak	Boiled potatoes, cold tomatoes.	Hard bread.	Coffee.
	Etc.	Etc.	Etc.	Etc.

Bills of fare—Continued.

OR, WHEN TIME IS MORE LIMITED.

	Meats.	Vegetables.	Bread, etc.	Drinks.
8	Fried bacon	Fried potatoes	Hard bread	Coffee.
9	Fried bacon		Flapjack	Coffee.
10	Corned beef (cold)	Tomato stew	Hard bread.	Coffee.
11	Fried fish and bacon	Baked potatoes	Hard bread.	Coffee.
12	Meat and vegetable stew		Hoecake	Tea.
13	Broiled steak	Baked potatoes	Hard bread.	Cocoa.
14	Boiled fish	Fried potatoes	Hard bread.	Tea.
	Etc.	Etc.	Etc.	Etc.

304. SUGGESTIONS FOR HANDLING BILL OF FARE NO. 1.

Take two-thirds of a cup of water and bring to a boil. Add 4 spoonfuls of rice and boil until tender, i. e. until it can be mashed by the fingers with but little resistance. This requires about fifteen minutes. Add 2 pinches of salt, and after stirring, pour off the water and empty the rice out on the lid of the mess pan.

Meanwhile, fry 3 slices of bacon until slightly browned in the mess pan over a brisk fire or hot coals, and lay them on top of the rice, leaving sufficient grease in the pan in which to fry the flapjack.

Take 6 spoonfuls of flour and one-third spoonful of baking powder and mix thoroughly. Add sufficient cold water to make a batter that will drip freely from the spoon. Add a pinch of salt and 2 pinches of sugar and pour the batter into the mess pan, which should contain the grease from the fried bacon. Place over medium hot coals and bake from 5 to 7 minutes; see that it will slip easily in the pan and then, by a quick toss, turn it over and continue the baking from 5 to 7 minutes longer or until, by examination, it is found to be done.

While the batter is frying, wash out the tin cup; two-thirds fill with water and let come to a boil. Add 1 medium heaping spoonful of coffee and stir well, and if desired, 1 spoonful of sugar and let boil for about 5 minutes. Let simmer for about 10 minutes longer. Settle by a dash of cold water or let stand a few minutes.

A hot meal is now ready. Time about 40 minutes.

305. RECIPES.

Drinks.

[For one meal for one man.]

Article and amount.	Amount of water.	Add when—	Let boil—	Add sugar if desired.	Remarks.
	Cup.		*Min.*	*Sp'nful.*	
Coffee, 1 heaping spoonful.	⅔	Water boils.	5	1	Stir grains well when adding. Let simmer ten minutes after boiling. Settle with a dash of water or let stand a few minutes. Ready to serve.
Cocoa, 1 heaping spoonful.	⅔	...do..	5	1½	Stir when adding until dissolved. Ready to serve when sufficiently cooled.
Chocolate, 1 cubic inch.	⅔	...do..	5	1½	Do.
Tea, ½ level spoonful.	⅔	...do..	0	1	Let stand or draw 8 minutes; if allowed to stand longer, the tea becomes bitter unless separated from the leaves.

NOTE.—**Coffee** made by above recipe is of medium strength and the same as when using 4 ounces to the gallon of water. It is within the limit of the ration if made but twice each day.

Tea.—A little more than medium strength, the same as when using ⅛ ounce to the gallon, and within the ration allowance if made three times per day.

Chocolate and cocoa.—About 1 ounce per man per meal. If available, milk should be used in the place of water, and should be kept somewhat below the boiling point. Mix a 1-pound can of evaporated milk with 3½ quarts of water to make 1 gallon of milk of the proper strength for use in making cocoa or chocolate

306. DRIED VEGETABLES.

[For one meal for one man.]

Article and amount.	Amount of water.	Add when—	Let boil—	Season with pinches of salt.	Add heaping spoonful sugar if desired.	Remarks.
	Cup.		*Hours.*			
Rice, 4 heaping spoonfuls.	⅔	Water boils.	½	2	1	Should be boiled until grains (while still nicely separated) may be crushed between the fingers with but little resistance. Then drain off the water.
Corn meal, hominy fine, oatmeal, 4 heaping spoonfuls.	⅓	...do...	½	2	.....	All water should now be taken up by the corn meal, hominy, or oatmeal, which forms a thick paste.
Dried sweet corn, 4 heaping spoonfuls.	⅓	...do...	½	2	1	
Lima beans, 4 heaping spoonfuls.	⅔	Water is put on.	2 or 3	1	.....	When done the beans should still be whole but soft. Add one small slice of bacon one-half hour before done. Add water as required.
Chili beans and frijoles, 4 heaping spoonfuls.	⅔	...do...	3 or 4	1	.....	Do.
Beans issue, dried green peas, hominy coarse, split peas, 4 heaping spoonfuls.	⅔	...do...	3 or 4	1	.....	Do.

NOTE.—By a *heaping spoonful* is meant here all that can readily be taken up. A *pinch of salt* is the amount that can readily be taken up between the ends of the thumb and forefinger.

307. MEATS.

Bacon.—Cut the side of a bacon in half lengthwise. Then cut slices about five to the inch, three of which should generally be sufficient for one man for one meal. Place in a mess pan with about one-half inch of cold water. Let come to a boil and then pour water off. Fry over a brisk fire, turning the bacon once and quickly browning it. Remove the bacon to lid of mess pan, leaving the grease for frying potatoes, onions, rice, flapjacks, etc.

Fresh meat, fried.—Put one or two spoonfuls of grease in mess pan and let come to a smoking temperature, then drop in the steak and, if about one-half inch thick, let fry for about one minute before turning, the time depending upon whether it shall be rare, medium, or well done. Then turn and fry briskly as before. Salt and pepper to taste.

Applies to beef, veal, pork, mutton, venison, etc.

Fresh meat, stewed.—Cut into pieces of from one-half to one-inch cubes. Fill cup about one-third full of meat and cover with about 1 inch of water. Add such fibrous vegetables as carrots, turnips, or cabbage, cut into small pieces, and let boil or simmer about an hour. Potatoes, onions, or other tender vegetables are added when the meat is about half done. Amount of vegetables to be added is about the same as meat, depending upon supply and taste. Salt and pepper to taste. This applies to all fresh meat and fowls.

Fresh fish may be handled as above, except that it requires less time to cook. Potatoes, onions, and canned corn are the vegetables generally used with it, thus making a chowder. A slice of bacon improves the flavor.

Stews may be conveniently cooked in mess pan or tin cup.

Fresh meat, broiled.—Cut slices about 1 inch thick, from half as large as the hand to four times that size. Sharpen a stick or branch about 2 to 4 feet in length and weave the point of the stick through the steak several times so that it may be readily turned over a few brisk coals or a small fire. Allow to brown nicely, turning frequently. Salt and pepper to taste. Meat with considerable fat is preferred, though any meat may be broiled in this manner.

Potatoes, fried.—Take two medium-sized potatoes or one large one (about one-half pound), peel and cut into slices about one-fourth inch thick and scatter well in the mess pan in which the grease remains after frying the bacon. Add sufficient water to half cover the potatoes, cover with the lid to keep the moisture in, and boil from fifteen to twenty minutes. Remove the cover and dry as desired. Salt and pepper to taste.

Potatoes, boiled.—Peel two medium-sized potatoes or one large one (about one-half pound), and cut into cubes of about 1½ inches. Place in mess pan about three-fourths full of water, cover with lid, and let boil or simmer for 15 or 20 minutes. They are done when easily penetrated with a sharp stick. Pour off the water and allow to dry for one or two minutes over hot ashes or light coals.

Potatoes, baked.—Take two medium-sized potatoes or one large one cut in half (about one-half pound). Lay in a bed of light coals, cover with same, and smother with ashes. Do not disturb for 30 or 40 minutes, when they should be done.

Onions, fried.—Same as potatoes fried.

Canned tomatoes, stewed.—Pour into the mess pan one man's allowance of tomatoes (about one-fifth of a 2-pound can), add about two large hardtacks broken into small pieces, and let come to a boil. Add salt and pepper to taste, or a pinch of salt and one-fourth spoonful of sugar.

Or, having fried the bacon, pour the tomatoes into the mess pan, the grease remaining, and add, if desired, two broken hardtacks. Set over a brisk fire and let come to a boil.

Or, heat the tomatoes just as they come from the can, adding two pinches of salt and one-half spoonful of sugar if desired.

Or, in hot weather, eaten cold with hard bread they are especially palatable.

309. **Hot breads—Flapjack.**—Take six spoonfuls of flour and one-third spoonful of baking powder and mix thoroughly (or dry mix in a large pan before issue, at the rate of 25 pounds of flour and three half-pound cans of baking powder for 100 men). Add sufficient cold water to make a batter that will drip freely from the spoon, adding a pinch of salt. Pour into the mess pan, which should contain the

grease from fried bacon, or a spoonful of butter or fat, and place over coals sufficiently hot to bake in from five to seven minutes. The flapjack may then be turned by a quick toss of the pan. Fry from five to seven minutes longer or until, by examination, it is found to be done.

Hoecake.—It is made exactly the same as a flapjack by substituting corn meal for flour.

EMERGENCY RATION.

310. Detailed instructions as to the manner of preparing the emergency ration are found with each can. Even a very limited amount of bacon or hard bread, or both, added to the emergency ration makes it far more palatable, and extends the period during which it can be consumed with relish. For this reason it is a good plan to husband the supply of hard bread and bacon and use it with the emergency ration when it becomes evident that the latter must be consumed.

FIELD EXPEDIENTS.

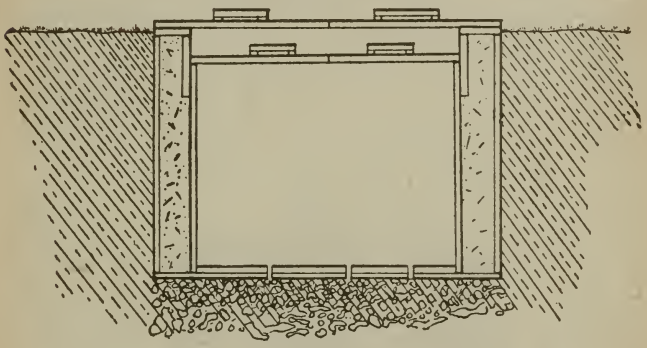
311. Equipment A is used when transportation is limited. With this equipment only boiling and frying can be done unless improvised ovens are constructed. In the absence of the fire irons provided with the equipment, narrow trenches of suitable width or trunks of green trees or rocks may be arranged as convenient substitutes. When time is available an oven in a bank or a mud field range should be constructed. These should be provided with openings on top, over which boilers may be placed for cooking. With this type of oven the cooking may be done on the top and afterwards the coals withdrawn and baking done in the chamber, or they may be used for baking and roasting only and the boiling otherwise provided for. By the latter method all portions of the meal may be cooked at one time. Another device which may be used is a simple range which is made by covering a suitable trench with a bake pan or two for a boiling surface and utilizing two or more coffee cans set end on for a flue. Beans may be baked in dugout ovens, clay ovens, or a vertical hole dug in the ground into which a jar or camp kettle containing them is placed and packed over and around with hot coals and earth. (See Par. 468.) Water may be kept cool without ice by using a canvas bag, or a can wrapped with wet burlap or grain sacks.

They should be kept in a draft, if possible, so as to increase the evaporation

312. The following are some of the simple expedients that may be used in the field.

An *ice box* is often a great convenience and may be constructed by simply setting a dry-goods box inside of a larger one, preparing

IMPROVISED ICE BOX.

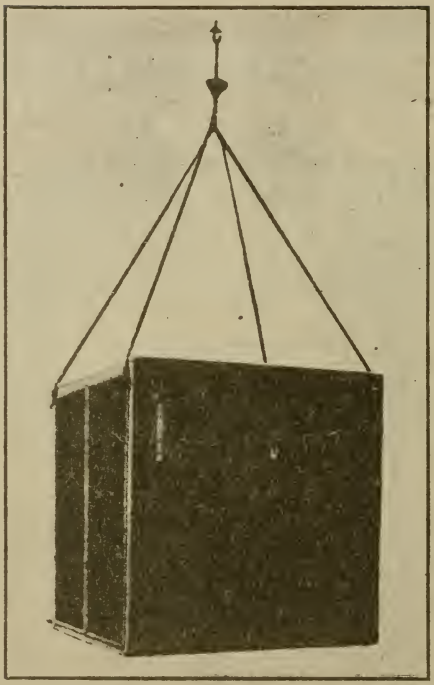


To provide a simple ice box for the field, sink a packing box of suitable size into the ground and prepare a close-fitting cover in two parts, for convenience in handling. It is well to surround the box with heavy paper or with packed straw or grass to prevent dirt from falling in through the cracks. To provide drainage, bore several holes in the bottom of the box, and, if practicable, put a quantity of stone or gravel in the bottom of the pit before installing the box. If facilities are at hand, provide a double box as shown. It will be more cleanly and, on account of the double top, the ice will last longer.

the necessary lids, and filling the space between the two boxes—4 to 8 inches—with sawdust, gunny sacks, leaves, grass, hay, straw, etc. Or even better, a single box may be set in the ground and packed around with materials as noted above or with solid earth.

Improvised incinerators are essential in camp. They may be made in several forms, the simplest of which is a pit about 6 feet in diameter and about 3 feet deep in the center, sloping uniformly to

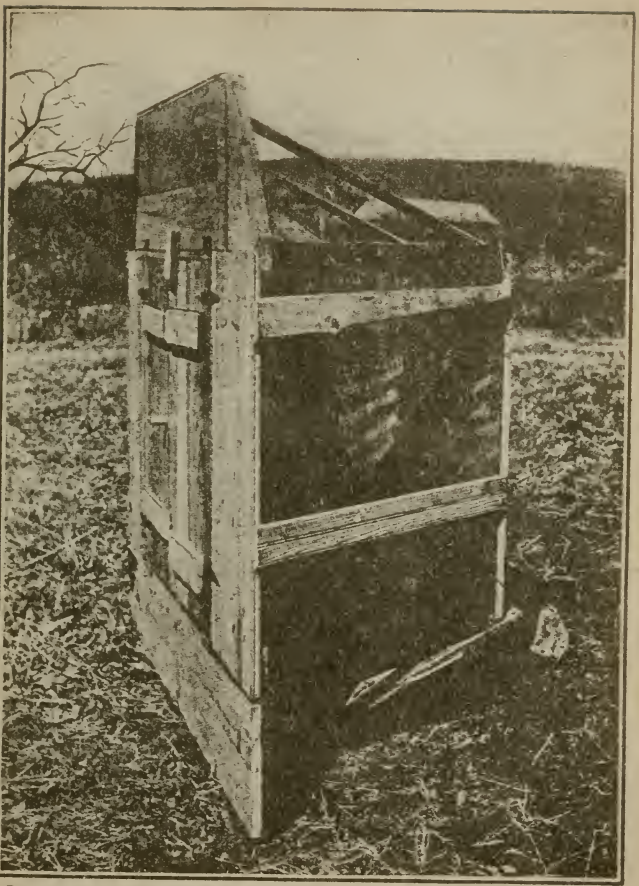
SWINGING CAGE.



Especially useful in the Tropics or in camp. It should be suspended in such a manner that a cup of oil placed as shown will prevent insects from reaching the cage.

Dimensions, about 3 feet square and 3 feet high.

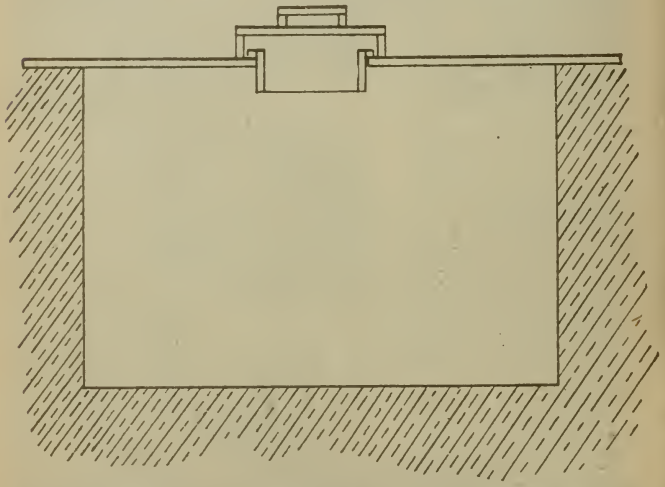
It is not regularly supplied and if provided must be constructed at the expense of the company fund.



It can be readily constructed according to above design. It should be well banked with earth on sides, rear, and top and should face north.

the outer edge. This pit is filled with rock, on which the fire is built. The water is poured into the edge of the pit and seeps among the hot rocks, which cause it to evaporate. The solid matter and cans are thrown into the fire; the cans are raked out each morning. Although this is the most simple form of incinerator and the most easily constructed, it is the most expensive, because of the excessive amount of wood consumed.

PIT FOR SLOPS.



Whenever facilities are not provided for disposing of the kitchen waste, it becomes necessary to dig a pit. In short camps not likely to be used again all kitchen waste may be thrown into the pit, but in camps of longer duration it is necessary to strain all dish water, etc., through a box sieve suitably placed over the pit and then to burn all solid matter in the range or incinerator. To darken the pit and keep it free from flies, make a solid board top, tamp with dirt, and provide a detachable box sieve with cover, as shown. The pit should generally be about 2½ feet wide, 5 feet long, and 4 feet deep when dug in clay. In more permeable soil the dimensions may be somewhat reduced. The incinerator is more satisfactory for disposing of waste water.

The incinerator shown in paragraph 296 in combination with the Army field range No. 1 is the most convenient and economical for camps of a few days.

The following simple incinerator is recommended for a company in camps of longer duration.

COMPANY INCINERATOR.

Dig two trenches 10 feet long and 10 or 12 inches wide, bisecting each other. At the point of bisection have the trenches 30 inches deep, gradually shallowing from this point to the ends. Fill with rock until about 18 inches deep at center. Over the place of bisection place four boards to support an ordinary sugar or flour barrel. Around the barrel pile sods of earth up to the top. Pack tightly. Make a fire in the trench under the barrel, which, upon being burned out, leaves a hard cone. According to the direction of the wind, leave one trench open and plug the other three openings near the cone with boards, turf, or loose soil. This gives a draft of air through the open trench and up through the cone, which acts as a flue.

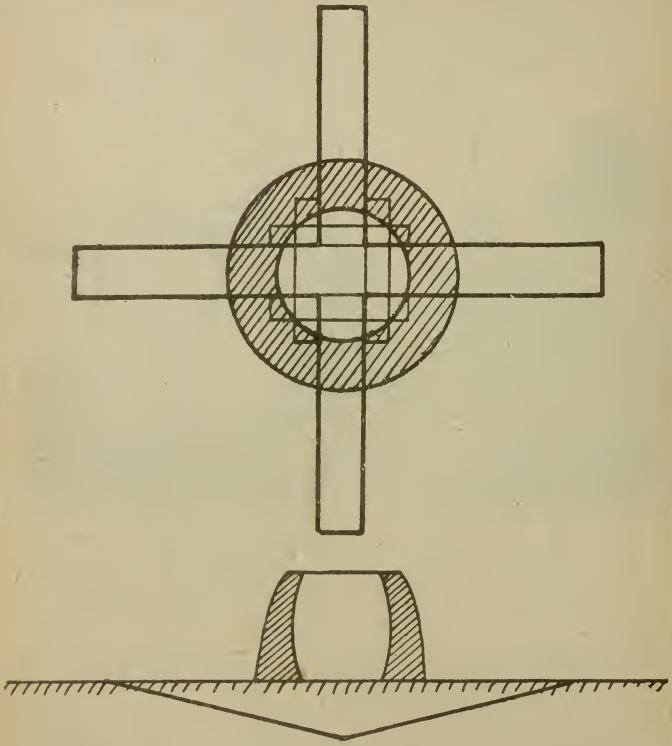
If the soil is full of clay, the cone is easily made. If not it can be done in the manner shown in the illustration by using sods.

All the garbage of a company kitchen in the field can be easily disposed of by this means.

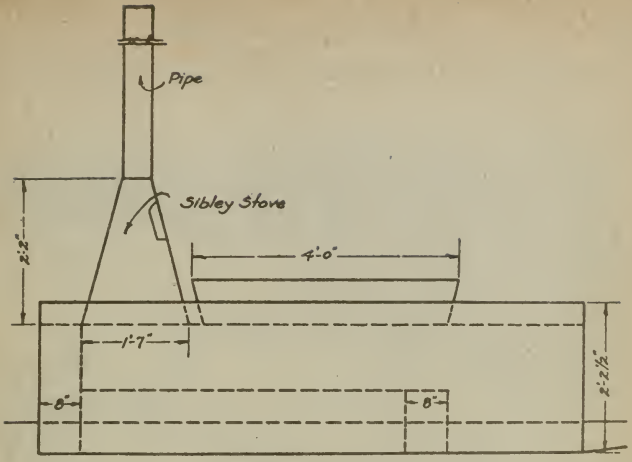
At the end of each day the ashes and tin cans should be raked out of the fireplace and a fresh fire started in the morning.

The fire is kept up by dropping fuel material down the cone, and garbage is fed to it in the same manner.

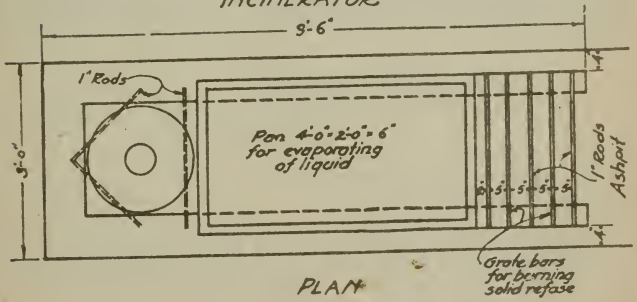
PLAN AND CROSS SECTION OF COMPANY INCINERATOR.



In permanent camp a more elaborate incinerator may be readily constructed according to the following specifications:



SIDE ELEVATION
INCINERATOR



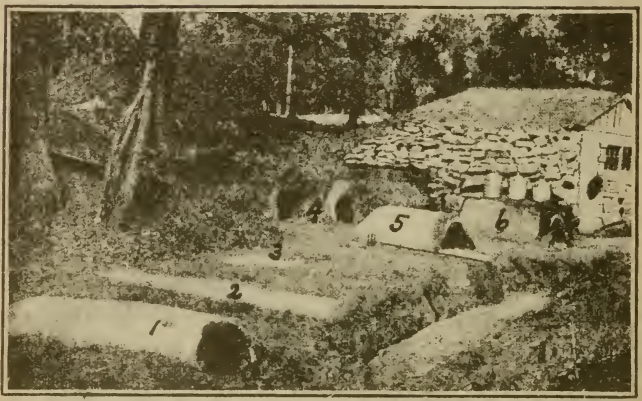
PLAN
INCINERATOR

MATERIALS

500 brick
1 G.I. pan 4'0"·2'0"·6"
1 Sibley Stove
8 Grate Bars 2'4"·1"

Estimated Cost $200.00

The plate below illustrates the several varieties of improvised field ovens.



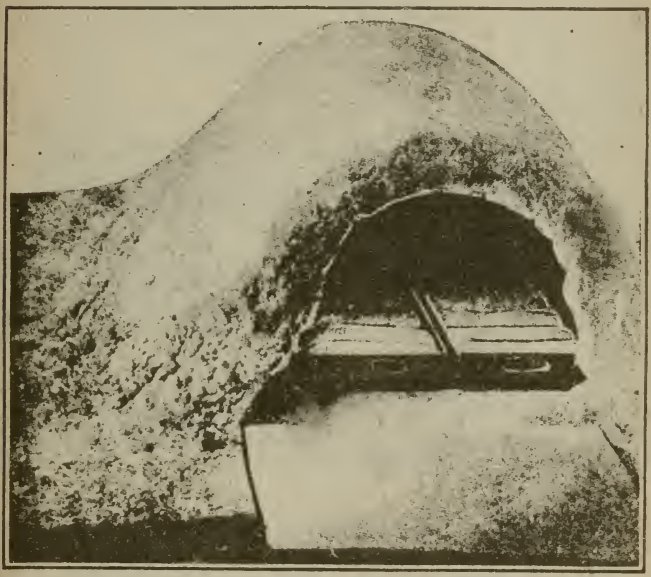
1. Clay covered trench. 2. Open trench for baking. 3. Bean pit. 4. Ovens in hillside. 5. Mud oven. 6. Mud range.

HOW TO CONSTRUCT AND OPERATE A TWO-BARREL CLAY OVEN.

Select a piece of level ground about 4 feet by 10 feet; get two salt or sugar barrels; knock top and bottom from one, and a small section of the bottom from the other (to be used as a flue in burning out); place them together head on, the one with the bottom to the rear. Cover the ends coming together with a little hay, so as to keep the sand from falling in, and stuff up the hole broken in the bottom of the rear barrel. Get some moist sand and cover both barrels completely, molding it so that it will be about two inches thick on top and splay out at the bottom about 2 inches on each side. Then mix some clay with hay, straw, or grass until you have a pretty stiff mixture, and cover the sand, beginning at the bottom

where it should be about 8 inches thick and finishing at the top with about 4 inches. Let stand for a day or two and then add about 3 inches of clay to the entire oven. Allow to stand a day longer and then cut a hole at the rear, taking the hay from the bottom

TWO-BARREL CLAY OVEN.

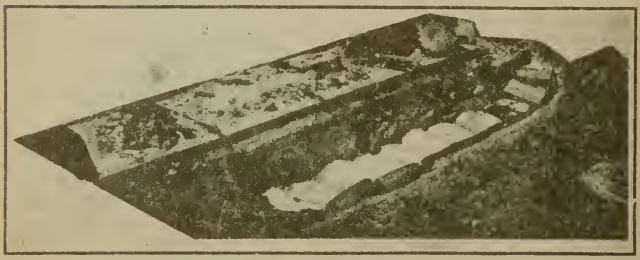


of the barrel. This will afford a draught and is also an excellent means of regulating the heat. Put a fire in the barrels and burn them out. Care should be taken to put in just enough fire to start the barrels, as a big fire will burn it too quickly, and the oven will

cave in. After the barrels are burned out, scrape all the sand from the top and sides and throw it out. The oven is now complete.

To obtain the best results with this type of oven, it is best to start the fire as soon as the dough is set. Keep up a pretty brisk fire for about two hours, and as soon as the dough is punched down, spread the coals evenly throughout the entire oven, and close all draughts. As soon as the dough is panned, draw the fire and close the oven up for about half an hour. Then take the oven "counts." If you can count seven (second count) you have just the proper heat. If more

OPEN TRENCH USED FOR BAKING.



Trench about 6 feet by 15 inches by 12 inches deep. Dry out by slow fire and keep slow fire in it about 2 hours before baking. Sweep trench clean and test temperature by sprinkling a little flour on bottom. It should brown in about 2 minutes. Place loaves, molded dry, across trench and about 2 inches apart. Cover trench with a sheet of iron or zinc and place coals upon it. Regulate top heat as required. Vienna shaped single-ration loaves recommended.

than 10, the oven is useless. If less than seven, the oven is too hot. This oven will hold five pans, each 12 by 24 inches, or 50 rations—sufficient for a company—and is equal to baking properties to any oven made.

To make a second run, put in another fire for about half an hour, draw the fire and close the oven for 15 minutes, and the oven will be ready for the second run. It would be well to dig a trench in front of the oven for convenience in handling the bread.

Lay out a level piece of ground about 3 feet 10 inches by 6 feet 9 inches and cover about 3 inches thick with wet clay, pack well and smooth on top. On the center of this floor lay the barrels end to end with the opening of one where the front of the range is to be. Take sand just damp enough to mold and pack under the sides of the barrels and over the top, making the form for the inside of the oven. With

THE MUD FIELD RANGE.

4. Dug-Out Oven. 5. Two-Barrel Mud Oven. 6. Two-Barrel Mud Range.

the clay make a thick mud and mix straw into it. This is very necessary, as the straw holds the clay together.

Begin on the sides and back and lay on the mud by hand, packing it well as it is laid on. Make bottom of sides about 10 inches thick and top about eight inches.

Just before the top is laid on, place blocks or bricks on end in center of top of each barrel and one over where the barrels join. Pack

some of the clay around them to hold them in place while finishing the top.

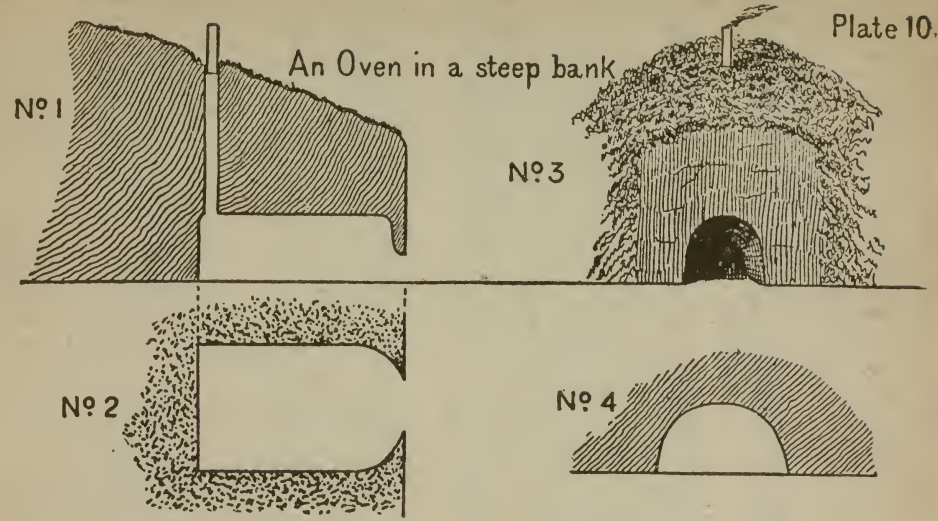
If desired, a hole may be left at the back, and a mud chimney constructed. This improves the draft and is believed desirable, but is not necessary.

This oven should be allowed to stand in a dry atmosphere for at least 24 hours. Then burn out the barrels with a slow fire. Keep a slow fire burning until the oven is well dried. The sand will then drop out and can be raked out with a hoe. Remove the bricks or blocks and the range is ready for use, but cracks appearing should be plastered up with mud. *Time required for four men to build*, about 4 hours.

When articles cooked on top of the range are done, the fire can be drawn and the oven used for baking bread or meats. See figure 6 above.

This is recommended as a very good and convenient oven. A bank from 4 to 6 feet high is the best for the purpose. The roof covering need not exceed 1½ feet. Two men with a spade and a long-handled shovel can build it in light soil in three-quarters of an hour. If such tools are not available, it may be constructed with trowel, bayonet, intrenching tools, or even with knives. To build the oven, dig down the bank to a vertical face and excavate at the base a hole from 4 to 5 feet horizontally, care being taken to keep the entrance as small as possible; hollow out the sides of the excavation and arch the roof until the floor is about 2 feet 6 inches in its widest part and the roof 16 inches high in the center of the arch. Then tap the back end for the flue. A hole from 4 to 6 inches in diameter will furnish a good draft. A piece of tent stove pipe may be utilized for this purpose. When difficult of construction, the flue may be omitted, and practically as good results will be obtained. The time required for drying will depend upon the character of the soil. If ordinarily dry, a fire kept up for an hour will suffice.

After the oven has been heated the temperature may be regulated by means of the door and flue—opening or closing them as may be necessary.



Handled in exactly the same manner as the improvised two-barrel clay oven.

Chapter VII.

MESSING ON RAILROAD TRAINS AND TRANSPORTS.

ON RAILROAD TRAINS.

313. **Standard kitchen car.**—This is a remodeled tourist sleeper, designed to cook for a battalion (peace strength) and to carry 42 men. Only limited facilities are provided for cold storage and for the storage of nonperishable articles, so that the bulk of the food supplies must be carried in a baggage car. For this reason, arrangements should always be made to have a portion of a baggage car—from one-third to one-half—allotted for this purpose, and in making up the train this portion of the baggage car should be placed next to the kitchen. The garrison ration is issued, and a considerable saving should be made from the credit allowance on beef, beans, dried fruits, sugar, sirup, flavoring extracts, etc. With this saving canned meats, canned vegetables, and canned fruits may be purchased.

An officer is detailed by the commanding officer of the troops to take charge of the messing arrangements and he is assisted by a mess sergeant. The mess officer designates the hours for meals and the manner in which they are to be served and requests the necessary details for kitchen police and waiters. Generally one or two cooks are provided by the Pullman Co. and the company cooks should be detailed to render them the necessary assistance and to perform the duties of kitchen police.

For serving the meal, the company mess sergeant and one man for each article on the bill of fare should report from each company. The serving of the meal does not begin until everything is ready. The details are then called up in order and the quantities due each organization having been determined, the troops farthest from the kitchen are served first.

314. The following bills of fare are considered appropriate:

Bills of fare for 100 men for 4 days.

DINNER, 22D.

Fried beef steak: 50 pounds steak.
Cream gravy: 2 pounds flour, 3 cans milk.
Boiled potatoes: 75 pounds potatoes.
Farina custard: 8 pounds farina, 24 eggs, 6 pounds sugar, 3 cans milk, 2 ounces extract.

SUPPER, 22D.

Beef stew: 30 pounds beef, 50 pounds potatoes, 2 pounds onions, 2 pounds flour.
Creamed hominy: 20 pounds hominy, 3 cans milk.
Coffee.

BREAKFAST, 23D.

Fried bacon: 25 pounds bacon.
Rolled oats and milk: 12 pounds rolled oats, 7 pounds sugar, 6 cans milk.
Apple jelly: 25 pounds jelly.
Butter: 2 pounds butter.
Coffee.

DINNER, 23D.

Roast beef: 45 pounds beef.
Browned potatoes: 75 pounds potatoes.
Kidney beans: 15 pounds beans, kidney.
Brown gravy, 2 pounds flour.

SUPPER, 23D.

Sliced cheese: 18 pounds cheese.
Creamed potatoes: 60 pounds potatoes, 3 cans milk, 2 pounds flour.
Stewed peaches: 25 pounds peaches, 8 pounds sugar.
Butter: 2 pounds butter.
Coffee.

BREAKFAST, 24TH.

Beef stew: 30 pounds beef, 50 pounds potatoes, 2 pounds onions, 2 pounds flour.
Hot biscuit: 24 pounds flour, 24 ounces baking powder, 6 pounds grease, 10 ounces salt.
Sirup: 3 gallons sirup.
Butter: 2 pounds butter.
Coffee.

DINNER, 24TH.

Hot frankfurters: 20 pounds frankfurters.
Mashed potatoes: 70 pounds potatoes.
Hot slaw: 25 pounds cabbage, 5 pounds bacon, 1 gallon vinegar, 2 pounds sugar.
Tapioca custard: 5 pounds tapioca, 6 pounds sugar, 24 eggs, 2 ounces extract, 3 cans milk.

SUPPER, 24TH.

Baked beef hash: 30 pounds beef, 50 pounds potatoes, 5 pounds onions.
Stewed tomatoes: 20 cans tomatoes, 2 pounds sugar, 3 cans milk.
Butter: 2 pounds butter.
Coffee.

BREAKFAST, 25TH.

Fried bacon: 25 pounds bacon.
Gravy: 2 pounds flour.
Fried potatoes: 75 pounds potatoes.
Butter: 2 pounds butter.
Coffee.

DINNER, 25TH.

Beef pot roast: 50 pounds beef, 5 pounds onions, 2 cans tomatoes.
Brown gravy: 2 pounds flour.
Browned potatoes: 70 pounds potatoes.
Stewed corn: 18 cans corn, 3 cans milk.
Bread pudding: 20 pounds bread, 4 pounds raisins, 8 pounds sugar, 4 cans milk, 1 can cinnamon.
Vanilla sauce: 3 pounds sugar, 2 pounds cornstarch, 2 cans milk, 2 ounces extract.

SUPPER, 25TH.

Beef, Spanish: 50 pounds beef, 5 pounds onions, 5 cans tomatoes, 3 pounds flour.
Mashed potatoes: 75 pounds potatoes.
Butter: 2 pounds butter.
Coffee.

BREAKFAST, 26TH.

Beef stew: 30 pounds beef, 50 pounds potatoes, 2 pounds onions, 2 pounds flour.
Rolled oats and milk: 12 pounds oats, 7 pounds sugar, 6 cans milk.
Coffee.

315. *Suggestions to mess sergeant—*

(1) Keep the keys to the ice box during journey.

(2) Weigh out to cooks every article on this bill of fare in the exact amount specified.

(3) If it becomes apparent that rations will have to be turned in at end of journey, change meals so as to have nonperishable articles left as far as possible.

(4) If no scales are available, refer to table of weights and measures in individual cooking, Chapter VI, paragraphs 301 and 302.

(5) Have sufficient water heated for the men to wash their dishes. Each car will send one man to the kitchen for same and dishes will be washed on car platform. Clean the platform when dishes are finished.

(6) Use 30 pounds of bread to each meal.

(7) Use 3½ pounds coffee, 4 pounds sugar, 4 cans milk to each meal of coffee.

316. **Baggage car with field range.**—When the standard kitchen car is not available, one or more Army field ranges may be set up in a baggage car. With this equipment the messing arrangements are similar to those when the standard kitchen cars are used.

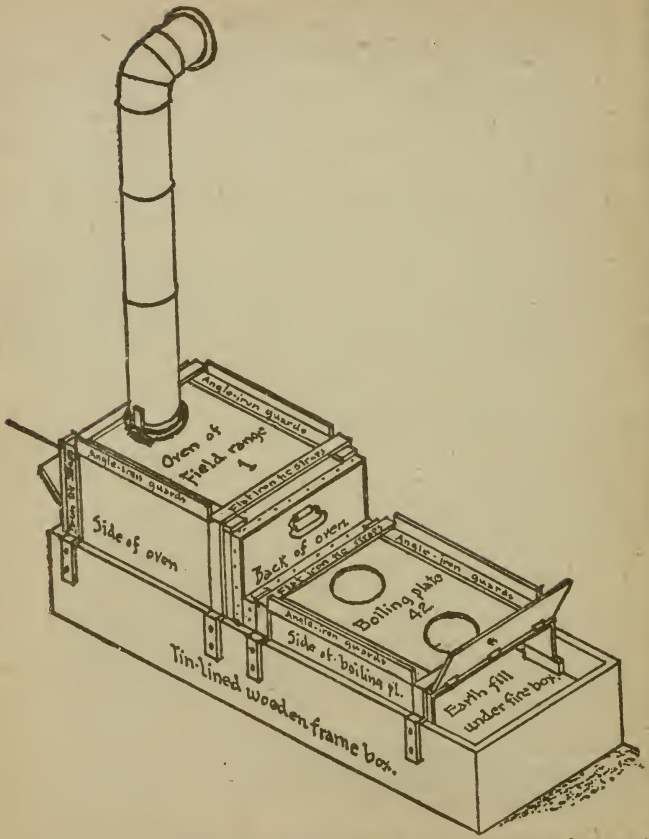
The following instructions are given for installing and dismantling field range No. 1 and boiling plate in a baggage car.

Construct a box 6 feet 8 inches long by 3½ feet wide and about 12 inches deep, inside measurements, using 1½ or 2 inch material if available. Line the sides, ends, and top edge of box with galvanized iron or zinc. Place box in car running lengthwise on one side of the car, about 2 feet from the side. Fill box with dirt up to about 2 inches of the top. Place a brick flush with top of dirt at each of the four corners where the range will set. Place range in box, front and oven end close up against end of box, and deep enough in box so that when oven door is opened it will lie flat on edge of box. Place boiling plate in box, the end resting on top of angle iron on rear of range. Place a brick under each front corner of boiling plate, flush with top of dirt. The Alamo attachment is not used when range No. 1 is installed in the above manner.

Fasten range and boiling plate firmly to box by means of strap iron or two or three strands of telegraph or telephone wire, at points shown on figure. Fill space between range, boiling plate, and side of box with soft mud, to prevent heat from escaping. Three and even four field ranges may be installed in a car.

Remove one of the top ventilating windows from car; tack tent guards, furnished with each range, over the opening—one on the outside of the car and one on the inside. Carry stovepipe up and out through the opening. End of pipe should extend about 6 inches outside of the ventilator opening. Elbow should be placed on end of pipe facing up and wired firmly to car. Wire stovepipe firmly to both sides of car.

Box can be held firmly in position on floor of car by nailing 2 by 4 inch strips around sides and ends of box. This is important and must not be neglected.



Army field range 1, with boiling plate 42, back to back, in frame box, on car, for use in transit, without Alamo attachment.

The following additional equipment to that supplied with each range is necessary:

2 G. I. water cans.
2 G. I. buckets.
1 elbow, stovepipe.
100 feet wire.

Water cans should be filled on every possible occasion where stops are made.

If the equipment is to be set up in a freight car, a hole will have to be cut in the top of car for the stovepipe, using tent guards, as explained above, to cover the opening.

317. **Detachment kitchen car.**—This car is designed for journeys where the number of men or the distance to be traveled does not warrant the use of the standard kitchen car.

It is provided with a gas range attached to the Pintsch gas tanks, and cooks for as many men as can be carried on the car. There is no ice box or refrigerator on this car, and consequently fresh beef can not generally be carried for more than two meals, unless the weather is such that the meat may be carried in sacking on the platform. Travel rations and fresh bread for 30 men for five days can be carried in the locker and a vacant section in the car. If the detachment is without an experienced cook, travel rations should be carried, and coffee made, under the direction of the officer or noncommissioned officer in charge. On short journeys, where an experienced cook is available, the garrison ration should be provided.

The following bills of fare are considered appropriate:

	Breakfast.	Lunch.	Supper.
1	Beefsteak and gravy. Boiled potatoes. Apricots. Bread and coffee.	Baked beans. Blackberry jam. Bread and butter. Coffee.	Beef stew. Bread and butter. Coffee.
2	Cold sliced corned beef. Boiled potatoes and gravy. Canned peaches. Bread and coffee.	Cold sliced corned beef. Canned peas. Coffee. Bread.	Beefsteak. Boiled potatoes. Bread and jam. Coffee.

318. **Pintsch gas cooker.**—This cooker is designed for the use of troops traveling in any type of car equipped with the Pintsch gas-lighting system, and practical experience has shown that sufficient gas is generally available for all cooking to be done. It was sufficient capacity for cooking for 48 men (the maximum number carried in one car) and supplies two hot components of the meal, as, for example, hot coffee and stewed corn, although but one article can be cooked at a time. One cooker is supplied with each car and contains ample utensils for cooking and serving the food, though the individual mess kits must be used.

Directions for use.—In setting up the gas cooker the work should be supervised by a commissioned officer. If none are present, then by the noncommissioned officer in charge.

(*a*) Set burner and stand in men's wash room or other suitable place and connect same with the nearest 4-tipped burner, as follows:

(*b*) Remove glass bowl and turn over to porter. Unscrew 4-cluster flame, being careful not to unscrew the cluster stem. Screw short pieces of gas tubing to cluster stem where 4-cluster flame was removed by the coupling at one end of the tubing. Then attach long piece of tubing to short piece and connect with the burner of the cooker. After the meal has been prepared disconnect long piece of tubing and allow end to remain attached to the cluster stem. When it is desired to operate the cooker, connect long piece of tubing to short piece.

If it is not practicable to make connections with a 4-cluster flame connect burner of cooker with a 1-burner bracket lamp, as follows:

With pliers remove gas tip and loosen the governing screw so as to insure a free flow of gas.

If the governing screw sticks tap lightly with the handle of the screw driver until it can be easily removed. Do not entirely unscrew the governing screw. Slip rubber end of tubing over pillar and connect other end to the burner of the cooker.

(*c*) The connections having been made, turn on the gas at the lamp and burner of the cooker and light with a wax taper. The greatest heat is obtained by having a strong blue flame.

(*d*) The burner being lighted, set on the largest copper boiler if it is desired to make coffee. The boiler should be filled about two-

thirds full, additional water being added when the coffee has come to a boil.

After coffee has been made, remove and set boiler on one of the asbestos mats, to prevent damage to the floor of the car. The second boiler is then set on the burner, with such food as may be desired to cook. Water must be added to prevent burning of food and melting the boilers. Stirring is also necessary when preparing certain foods.

It requires about 1 hour and 20 minutes to prepare coffee and cook one hot dish for 48 men.

After the meal is prepared set the galvanized-iron boiler on the burner and heat the necessary water for washing the mess kits and utensils.

Caution—

(*a*) Do not put boilers on without water in them.

(*b*) Always add a little water, about 1 quart to every 10 pounds of food to prevent burning.

(*c*) Remove the coffee and hot water from the copper vessels as soon as practicable, to preserve the tinning inside.

(*d*) Look at the gas flame occasionally, to see that it has not blown out.

(*e*) To reduce gas consumption and save time, get hot water for washing dishes from the locomotive.

(*f*) Never light the gas with boiler set on heater.

(*g*) If the roadbed is rough and there is considerable motion to the train, secure the stand and burner by the two leather straps furnished with the cooker. To prevent the splashing of water when coffee is made or water heated, place round slop board in the boilers so as to counteract the motion of the car.

(*h*) In case of leaks in the gas tubing, cut out leak with sharp knife and connect the two pieces of tubing with a coupler, wrapping ends of tubing with wire.

(*i*) Handle the equipment intelligently and carefully. Never pack any article unless clean and dry. When returned to a depot or post the equipment should be completely overhauled, cleaned, and tested.

The garrison ration is used when the cooker is provided and it is recommended that the following food be purchased from the credit allowance:

Beef, corned, canned.
Hash, corned-beef.
Salmon, canned.
Potatoes, about one-third of allowance.
Soft bread.
Hard bread.
Tomatoes.
Jam.
Coffee, roasted and ground.
Tea.
Sugar.
Milk, evaporated.
Pickles.
Salt.
Pepper.
Butter.
Sirup.
Soap.

A quantity of canned baked beans should be purchased, as they can be readily heated by the cooker and the dried beans can not be cooked en route. If the journey is an extended one, fresh onions and a small quantity of bacon may be purchased.

On account of the limited space available for cooking, it is not practicable to prepare elaborate meals, but the fare may be much improved by purchasing extra food from the company fund.

The following is a list of foods which may be prepared on the gas cooker:

Beans, stringless, canned.
Beef stew, canned.
Chocolate.
Cocoa.
Corn, canned.
Eggs, fresh.
Frankfurter sausage, canned or fresh.

Fruit, fresh.
Hominy, canned.
Peas, canned.
Plum pudding, canned.
Sauerkraut, canned.
Soups, canned.
Vienna sausage, canned or fresh.

The following are sample bills of fare for two days when using the Pintsch gas cooker:

FIRST DAY.	SECOND DAY.
Breakfast:	Breakfast:
Hot corned-beef hash.	Hot baked beans.
Soft bread and butter.	Soft bread and butter.
Coffee.	Coffee.
Dinner:	Dinner:
Cold corned beef.	Cold meats.
Hot baked beans.	Stewed tomatoes and corn.
Soft bread.	Soft bread.
Pickles.	Tea.
Coffee.	Supper:
Supper:	Hot corned-beef hash.
Cold meat (boiled ham or roast beef cooked before starting on journey).	Soft bread.
Stewed tomatoes.	Coffee.
Soft bread and jam.	Sirup.
Tea.	

319. ON TRANSPORTS.

Troops traveling on transports subsist on the garrison ration, varied by the substitution of other articles of authorized subsistence stores, the total daily cost per man of the food consumed not to exceed 20 per cent more than the current cost of the garrison ration. No savings are authorized.

The subsisting of the troops is in charge of the chief steward, who is responsible for the discipline, good conduct, and efficiency of the employees of his department, and for the care and preservation of subsistence stores, cleanliness of troop galleys, and prevention of waste, and is required to see that the quantity and quality of provisions are satisfactory. But the messing of troops on board is under

the immediate charge of a mess officer detailed by the commanding officer of the troops.

The mess officer is assisted by a noncommissioned officer and by such other enlisted men (noncommissioned officers, cooks, bakers, waiters, etc.), detailed from the troops on board, as may be necessary. He is required to see that the meals are served in the proper order and at the proper time; that utensils are cleaned and put away after each meal; and that the mess decks are properly policed. He prescribes the order in which the different companies are to be served and prevents crowding and confusion in the troop galleys. He is responsible for the table furniture used and receipts to the quartermaster agent for it. Under the direction of the commanding officer, he should see that the casuals on board are divided into suitable sized mess squads and that all troops are assigned to certain tables and that when all can not be served at the same time, the sittings and assignments are such that no organization is placed at a disadvantage. He makes an inspection of the decks at each meal and sees that his orders are being carried out.

It is his most important duty to see that the troops on board get the full benefit of their ration allowances. To do this, he should get from the adjutant a statement of the number of men to be subsisted in the troop mess and from the chief steward each day a list of the stores turned over to the troop galley, the bill of fare, and a price list of all stores on hand. The mess officer's assistant should check the list of stores actually turned over to the troop galley and the amount of bread actually issued. The mess officer has now complete data to enable him to determine just what subsistence stores may be purchased for the mess. He should keep a balance sheet, in order to know from day to day how the value of the food consumed compares with the daily allowance. In making this calculation it should be remembered that each 100 pounds of flour baked should produce about 140 pounds of bread; that the regular bakers are paid the same as other ship's employees; and that the enlisted men detailed to assist them are given no extra compensation. The amount of bread actually consumed should never exceed 1 pound per man daily, and with proper care it should not exceed 12 ounces. The consumption of the meat and fresh vegetable components is ordinarily about the same as in garrison.

From a consideration of the above facts, it would seem that the troops should get all the meat and vegetables they want, and that there should be no reason for having any kind of a stew more than once a day. The troops should, however, be provided every day with a good stock soup.

There is always more waste aboard ship than in a company mess on shore, but this waste may be greatly reduced by careful supervision. There are often many casuals on board, and it is only by the most careful supervision that unnecessary waste by them can be prevented. It is important that bread be cut into small slices and that all food not taken on the men's plates be returned to the galleys for future use and that the men be not allowed to take on their plates more than they are going to eat. By careful supervision an excellent mess may be maintained.

There should be an officer present with each organization at each meal to see that the men appear at the tables properly dressed, with hands and faces washed, hair combed, and hats off; that they are served in an orderly manner; that undue waste is prevented; that they remain at the table no longer than their allotted time; that the tables are cleaned off and in good condition for the next sitting; and that men, not authorized to be on his portion of the mess decks at meal times, keep off. Fifteen minutes before meals the mess decks should be cleared and no one (not on duty) allowed to enter until mess call sounds, and then only those men who are assigned to that particular sitting.

Experience has shown that troops can be made to appear just as well at their meals on board ship as in their barracks, and that they can be taught to preserve the same order and cleanliness as when on shore.

For a command of 1,000 men, the following details from the troops are usually made:

(*a*) One noncommissioned officer in general charge. He keeps check on the rations received and superintends the work of the men in the galley during the preparartion of the meals and during their service. He calls up the details from the different mess squads (usually one noncommissioned officer and three privates to each squad) in their proper order, and sees that the different components of the meal are issued out in sufficient quantities, according to the

number of men in the various squads. He receives complaints and, if unable to remedy the same, at once reports the facts to the mess officer.

(*b*) One noncommissioned officer and two men to carve meat. This noncommissioned officer assists the noncommissioned officer in general charge in any way directed.

(*c*) Two cooks for day duty.

(*d*) Two cooks for night duty, roasting beef, etc.

(*e*) Two bakers.

(*f*) One assistant butcher.

(*g*) One man to attend to the coffee boiler.

(*h*) Two men for general work, peeling potatoes, etc.

Altogether, about 1 man for every 50 on board. Prisoners are usually available for bringing rations from the hold. Troops usually have little to do on board, and the mess officer should be given as many men as he desires to assist in the work.

320. **Steam cooking.**—Generally speaking, food on transports is cooked by steam. There is an impression that the steam used in cooking comes in direct contact with the food and that there is a peculiar taste to steam-cooked food. This is a mistake. A steam jacket surrounds the bottom and sides of the vessel, being separated from it about an inch and a half and having no connection with the inside of the vessel. In some cooking pots this jacket extends only half way up the sides, while in others it extends to the top. There is absolutely no difference between boiling and stewing in the steam pot and by the ordinary method on the range.

321. **Preparation of meats.**—Beef may be roasted nicely in any steam pot of sufficient capacity, to which the steam is supplied through an inch pipe with 60 pounds pressure. The beef should be cut in pieces weighing about 5 pounds each and put into the pot, no part of the meat coming above the steam jacket. Begin to baste the beef after about half an hour. When it is about half done, take an iron hook (about 2 feet long, with a 2-inch hook and wire grip) and turn the pieces over one by one.

This method of roasting has no equal for medium and well done roasts, but the range is better for rare roasts. The steam pot is better than the range for cooking fat meats, pork, and mutton.

322. **Bread and cake.**—On account of the limited space, the "straight-dough" process of baking bread should be followed on transports. Allow the dough to rise twice and work it down; allow it to rise again, and mold into loaves. One-pound loaves are the best size to bake, as they may be baked in from 30 to 40 minutes. With the proper number of bakers, the work pertaining to baking bread should be finished by 1 a. m. Between this time and 5 or 6 a. m. the shop may be used for baking cakes and pies for the troops. After 5 or 6 a. m. it is used by the pastry cooks. To do this work, a shift of three bakers (for 1,000 men) should come on duty at 12 midnight and leave at 6 a. m.

The following recipe for cake has been handled on board transports with marked success:

50 pounds sugar.
25 pounds fat.
400 eggs.
1 bottle lemon extract.
2 pounds salt.
100 pounds flour.
10 8-ounce cans baking powder.

Beat the sugar, fat, eggs, lemon extract, and salt together for about 15 minutes; then add the flour and baking powder, mixing well. Add sufficient water to make a stiff batter. Spread from 1½ to 2 inches deep in bake pans, and allow to bake from 30 to 50 minutes in a medium-hot oven.

An excellent cake can be made by using the same recipe and adding raisins or currants, or by blending with the dough 10 pounds of chocolate, or by blending with one-half the dough 2 pounds of chocolate. In the last case, place the light dough in the pan first and spread the dough containing the chocolate on top of this. The recipe may be further varied by adding other flavors or by making layer cakes.

An excellent icing can be made of the whites of 20 eggs, a bottle of lemon extract, 10 lemons, 1 ounce of tartaric acid, and sufficient powdered sugar to thicken it. Whip well and spread over the cakes.

These cakes are called plain cake, raisin cake, currant cake, chocolate cake, marble cake, lemon cake, lemon layer cake, etc.

The fat required to bake pies and cakes can be saved from the beef.

Generally speaking the diet on board ship is too heavy, considering the amount of work done by the men. Too much meat is consumed. A great variety of light food should be supplied them. Boiled fresh fish with cream sauce can easily be handled three times a week. Men do not easily tire of fresh fish, boiled or fried, but always tire of canned salmon when served frequently.

323. *Ten days' bills of fare for transport mess.*

	Breakfast.	Dinner.	Supper.
1	Fine hominy with sugar. Beef stew, family style. Bread and butter. Coffee with milk.	Vermicelli soup. Boiled bacon with cabbage. Mashed potatoes. Stewed lima beans. Stewed peaches. Bread and coffee.	Stewed apples. Braised beef. Boiled potatoes. Bread and butter. Tea.
2	Oatmeal and milk. Soft-boiled eggs. Baked potatoes. Bread and butter. Coffee.	Vegetable soup. Roast beef. Boiled onions. Mashed potatoes. Pickles and cold slaw. Corn cake. Bread and coffee.	Stewed prunes. Corned-beef hash. Bread and butter. Cocoa.
3	Fresh apples. Corn-meal mush and milk. Fried bacon. Browned potatoes. Bread and butter. Coffee.	Purée of split-pea soup. Braised steak and onions. Mashed potatoes. Stewed peaches. Bread and coffee.	Salmon salad. Boiled potatoes. Canned apples. Bread and butter. Coffee.
4	Cracked wheat with sugar. Vienna sausage. Potatoes. Bread and butter. Coffee.	Cream of tomato soup. Corned beef with cabbage. Boiled potatoes. Plain cake. Bread and coffee.	Beef, Spanish. Rice. Fruit pudding. Bread and butter. Tea.
5	Bananas or oranges. Fine hominy and milk. Soft-boiled eggs. Bread and butter. Coffee.	Rice and tomato soup. Roast of mutton, gravy. Mashed potatoes. Stewed lima beans. Plain pudding with sauce. Bread and coffee.	Braised beef. Potatoes. Blackberry jam. Bread and butter. Tea.

Ten days' bills of fare for transport mess—Continued.

	Breakfast.	Dinner.	Supper.
6	Boiled rice and milk. Pork sausage and gravy. Baked potatoes. Bread and butter. Coffee.	Purée of bean soup. Corned pork with sauer kraut. Mashed potatoes. Cottage pudding and sauce. Bread and coffee.	Chili con carne. Macaroni and cheese. Stewed prunes. Bread and butter. Cocoa.
7	Oatmeal and milk. Braised liver and bacon. Potatoes. Bread and butter. Coffee.	Noodle soup. Soft roast of beef. Mashed potatoes. Boiled beans. Stewed peaches. Bread and coffee.	Mutton stew. Cottage pudding and sauce. Bread and butter. Tea.
8	Oranges. Cracked wheat and milk. Boiled eggs and fried bacon. Potatoes. Bread and butter. Coffee.	Rice and tomato soup. Boiled beef and dumplings. Boiled potatoes. Baked hominy. Plain cake. Bread and coffee.	Corned-beef hash. Canned apples. Bread and butter. Coffee.
9	Fresh apples. Fine hominy and milk. Boiled eggs. Corned-beef hash. Bread and butter. Coffee.	Noodle soup. Beef á la mode, gravy. Mashed potatoes. Stewed corn. Bread and butter. Coffee.	Curried beef and rice. Baked potatoes. Peach butter. Bread and coffee.
10	Apple butter. Corn-meal mush and milk. Boiled eggs and fried bacon. Potatoes. Bread and butter. Coffee.	Vegetable soup. Pork and beans. Sliced onions, catsup. Beet pickles. Plum pudding and sauce. Bread and coffee.	Braised beef. Potatoes. Canned peaches. Bread and butter. Coffee.

Chapter VIII.

RECIPES.

BREAKFAST DISHES.

324. *Milk for breakfast foods* (for 20 men).

Ingredients used:
- 2 1-pound cans evaporated milk.
- 8 ounces sugar

Add a pinch of salt and sufficient water to make 1 gallon. Whip well a few minutes.

325. *Cakes, batter* (for 60 men).

Ingredients used:
- 8 pounds flour.
- 2 pounds sugar.
- 16 eggs.
- 8 ounces baking powder.
- 1¾ ounces salt.

Make a batter of the flour, sugar, salt, and eggs (if practicable, about 10 hours before the cakes are to be made). Just before cooking each portion of the batter, mix in the proper portion of baking powder and grease griddle. If for example, one-eighth of the above amount is to be baked at a time, 1 ounce of the baking powder should be added to each portion. Serve hot with butter, sirup, or both.

326. *Cakes, buckwheat* (for 60 men).

Ingredients used:
- 5 pounds buckwheat flour.
- 5 pounds wheat flour.
- 2½ pounds molasses, or
- 2½ pounds sugar.
- 2 ounces salt
- 10 ounces baking powder.

Mix the flour, salt, and molasses (or sugar), and add water to make a stiff batter. Just before cooking each portion of the batter add the baking powder and grease the pan, as explained in the preceding recipe. If desired, this batter may be set the evening before, with 3 cakes of dried yeast, allowing it to stand about 12 hours in a temperature of 80° F. In this case, 3 ounces of baking powder may be added, if desired, but this is not necessary. Serve hot with sirup, butter, or both.

327. *Cakes, corn* (for 60 men).

Ingredients used:
- 3 pounds flour.
- 3 pounds corn meal.
- 1½ pounds sugar.
- 12 eggs.
- 6 ounces baking powder.

Mix the flour, corn meal, sugar, and eggs into a batter, beating well for about five minutes, and let stand for 2 hours before using. Add the baking powder just before baking, mixing it into each portion, as explained for batter cakes. In no case should all of the baking powder be added at once. Serve hot with sirup, butter, or both.

Hot cakes.—In many organizations attempts to serve cakes have been given up on account of the apparent necessity of serving them cold. To obviate this, place a hot bake pan on the shelf in the range and as fast as the cakes are fried pile them carefully in tiers of about one dozen each and they will keep hot for a long time. Cover with a clean dish towel, and use one beneath the pile of cakes.

328. *French toast* (for 60 men).

Ingredients used:
- 17 pounds bread.
- 1 pound sugar.
- 1 pound sirup.
- 1 can evaporated milk.
- 1 quart water.
- 6 eggs.
- 2 pounds flour.

Cut the bread in slices about one-half inch thick; dip in a batter made of the eggs, flour, milk, sugar, and water; add salt to taste; fry the same as batter cakes. Serve hot with butter.

329. *Hominy, fried* (for 60 men).

Ingredients used:
6 pounds hominy.
4 gallons water.
2 ounces salt.

Place the water in a boiler on the range; when boiling add the salt and hominy and boil 20 to 30 minutes; remove from the boiler, spread about 1 inch deep in well-greased pans, and allow to cool; cut in pieces about 2 inches square; roll in flour and fry in deep lard. Serve hot with sirup or butter.

330. *Flaked hominy* (for 60 men).

Ingredients used:
5½ pounds flaked hominy.
4 gallons of water.
2 ounces sugar.
1 ounce salt.

Bring the water to a boil, then add sugar, salt, and hominy; let boil for about 20 minutes; remove to the back part of the range and let simmer for about 40 minutes. A double boiler is preferable. One can be made by inserting the boiler with the hominy into a larger boiler.

331. *Milk toast* (for 60 men).

Ingredients used:
12 pounds bread.
2 pounds sugar.

Slices of bread left over may be used. Place in a large bake pan not more than one-third full, and brown in a 15-count oven. Saturate with boiling water and sprinkle with sugar. Serve in vegetable dishes, with milk poured over it.

332. *Mush, corn meal* (for 60 men).

Ingredients used:
6 pounds corn meal.
1½ pounds sugar, if not on table.
1 ounce salt.
4 gallons water.

Allow the water to come to a boil, add the salt (and sugar if not on table) and the corn meal, meanwhile whipping well to prevent lumping. Cook for about 20 minutes and then allow to stand about the same length of time where it will remain hot. Place in vegetable dishes and serve hot with fresh or evaporated milk poured over it.

333. *Mush, corn meal, fried* (for 60 men).

Ingredients used:
7 pounds corn meal.
4 gallons water.
2 ounces salt.
2 ounces sugar.

Prepare in the same manner as corn meal mush; pour into a well-greased bake pan to a depth of about 1 inch; allow to cool; cut into pieces about 2 inches square; roll in a flour batter; and fry in deep lard. Serve hot with sirup.

This preparation may be improved by dipping each piece in an egg batter before rolling in the flour.

334. *Mush, oatmeal* (for 60 men).

Ingredients used:
5 pounds oatmeal.
½ pound sugar.
1 ounce salt.
6 cans evaporated milk.
3½ gallons water.

Place the water in a boiler and allow it to come to a boil; whip the oatmeal in, slowly adding salt and sugar and boil for five minutes. Let simmer one-half hour and serve with milk and sugar.

335. *Mush, rolled wheat* (for 60 men). Prepared the same as oatmeal mush using 5 pounds of rolled wheat instead of 5 pounds of oatmeal.

336. *Prepared breakfast foods.* Follow the directions given on the packages.

SOUPS

337. *Barley soup* (for 60 men).

Ingredients used:
6 gallons beef stock.
3 pounds barley.
1½ pounds chopped onions.

Mix all ingredients well and boil for one hour, when the soup will be ready to serve. Salt and pepper to taste. Regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons.

338. *Barley and tomato soup* (for 60 men).

Ingredients used:
5½ gallons beef stock.
3 pounds barley.
10 pounds tomatoes.
1 pound diced bacon.

Mix all ingredients well, salt and pepper to taste, and allow to boil for one hour. If fresh tomatoes are used they should be stewed and pressed through a colander before being added to the soup. Regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons.

339. *Bean soup* (for 60 men).

Ingredients used:
6 pounds beans.
7 to 9 gallons water or beef stock.
5 pounds soup bone.
1½ pounds bacon.

Clean and wash the beans well; place in the water (or beef stock) in a boiler near the center of the range and allow to simmer overnight. About 7 a. m. add the soup bone and bacon; boil until about 10 o'clock, or until the beans have gone to pieces, and pass through a colander. Place on the range again and allow to come to a boil; regulate the amount of stock or water so that when the soup is ready

to serve there will be about 6 gallons; thicken with a flour batter and season with pepper and salt. Serve hot with hard or fresh bread.

340. *Beef soup* (for 60 men).

Ingredients used:
6 gallons beef stock.
3 pounds beef.
1 can tomatoes.
1½ pounds rice, if desired.
1 bunch parsley, if desired.

This soup may be made to best advantage on days when boiled beef is served. After boiling the beef until done take it out and skim off the grease; dice the beef to the size of a bean and add the water (or stock); add the tomatoes and, if desired, a little rice; regulate the amount of beef stock so that when the soup is ready to be served there will be about 6 gallons. Season to taste and serve hot.

341. *Chicken soup* (for 60 men).

Ingredients used:
6 gallons beef stock.
10 pounds chicken.
1 pound rice.
4 ounces parsley.

After dressing boil the chicken until well done; remove it and take out the bones; place the bones in the beef stock and boil for one hour; remove the bones and strain the stock; dice the chicken very fine and place in a boiler with the beef stock, add the rice, and boil for one-half hour; add enough stock and water to make 6 gallons; pepper and salt to taste. Before serving place a little parsley in each tureen.

342. *Clam chowder* (for 60 men).

Ingredients used:
6 quarts clams.
8 pounds potatoes, diced.
1 pound bacon, diced and browned.
10 quarts beef stock.
½ pound chopped onions, browned.

Cook the potatoes, bacon, and onions in the beef stock until well done, add the clams, and let come to a boil; thicken slightly with a flour batter and it will be ready to serve. Salt and pepper to taste and regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons.

343. *Codfish chowder* (for 60 men).

Ingredients used:

5 pounds codfish, shredded.
1½ pounds bacon, diced.
1½ pounds onions, chopped.
6 pounds potatoes, diced.
1 pound hard bread.
2 cans evaporated milk, if desired.
6 gallons beef stock.

Brown the bacon and onions in a bake pan on the top of the range; add the potatoes and codfish and cover well with stock; boil until done, about 20 minutes; break the hard bread in small pieces and toast slightly in the oven, adding to the chowder after the potatoes are done. Then add the milk, if it is desired, and season to taste. Regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons.

344. *Corn chowder* (for 60 men).

Ingredients used:

3 No. 2 cans corn.
1½ pounds diced bacon.
1½ pounds onions.
6 pounds potatoes, diced.
4 gallons beef stock.
2 cans evaporated milk.
1 pound hard bread.

Fry the bacon and onions in a bake pan on top of the range until brown; add the potatoes and cover with stock; boil until done; break up the hard bread into small pieces; toast slightly and add to the chowder when the potatoes are done; add the milk and corn, but do not allow to boil; season to taste. Regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons.

345. *Cream of cabbage* (for 60 men).

Ingredients used:

6 pounds cabbage, chopped fine.
6 gallons beef stock.
2 1-pound cans evaporated milk.
1 pound fat, butter preferred.
1 pound flour, browned in the fat.

Boil the cabbage about 15 minutes; drain the water off and add the beef stock; cook about one hour; thicken with a flour batter, and just before serving season with white pepper, salt, and celery salt, and add the milk. Regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons.

346. *Cream of celery* (for 60 men).

Ingredients used:

6 pounds celery, diced fine.
5 gallons beef stock.
1 pound fat, butter preferred.
1 pound flour, browned in fat.
2 1-pound cans evaporated milk.

Add the celery to the beef stock and boil about one hour; season with white pepper, celery salt, and salt; thicken with batter made of the fat and flour, and just before serving add the milk. Regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons.

347. *Cream of tomato soup* (for 60 men).

Ingredients used:

5 gallons beef stock.
4 No. 3 cans tomatoes.
2 1-pound cans evaporated milk.
1 pound fat, butter preferred.
1 pound flour, browned in fat.

Add the tomatoes to the stock and boil from one and one-half to two hours; season with celery seed, mustard, comina, salt, and pepper; thicken slightly with a flour batter and add the milk, with a pinch of soda. Regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons. Serve hot.

348. *Lentil soup.* Prepared in the same manner as bean soup, substituting lentils for beans.

349. *Macaroni soup* (for 60 men).

Ingredients used:
- 3 pounds macaroni.
- 6 gallons beef stock.
- ½ pound chopped onions, browned if desired.
- 1 pound bacon, browned if desired.

Break the macaroni in pieces about 1 inch long and boil in the stock about 40 minutes, seasoning to taste with salt and pepper. Regulate the amount of beef stock so that when the soup is served there will be about 6 gallons.

350. *Macaroni and tomato soup* (for 60 men). Prepared the same as macaroni soup, except three No. 3 cans tomatoes are added with the macaroni.

351. *Noodle soup* (for 60 men). Prepared the same as macaroni soup, using 4 pounds dry noodles instead of 3 pounds macaroni.

To prepare the noodles.—To each pound of flour add one-fifth ounce of salt; mix with milk and water until the dough is stiff. If practicable, add two eggs to each pound of flour used. Roll the dough out until it is about one-eighth of an inch thick; sprinkle a little flour over it and roll it up. Cut slices from the end of the roll about one-eighth to one-fourth inch thick and spread on a board or cloth in the sun to dry. The noodles thus prepared will keep indefinitely.

352 *Oxtail soup* (for 60 men).

Ingredients used:
- 8 pounds oxtail, chopped into one-half inch cubes.
- 5 gallons beef stock.
- 2 pounds fried carrots, diced.
- 2 pounds fried onions, diced.
- 2 No. 3 cans tomatoes.
- 1 pound fat, butter preferred.
- 1 pound flour, browned in fat.

Add the oxtail, carrots, onions, and tomatoes to the beef stock, and let simmer until the tails are well done; thicken with the flour batter.

Regulate the amount of beef stock so that when the soup is ready to be served there will be about 6 gallons. The above recipe should produce a thick soup of a reddish color. Serve hot.

353. *Oyster stew* (for 60 men).

Ingredients used:
12 No. 2 cans oysters.
5 gallons beef stock.
3 1-pound cans evaporated milk.
½ bottle Worcestershire sauce.

Drain off the liquor; thicken the beef stock slightly with the flour batter, and add the liquor from the oysters; bring to a boil; season to taste with salt, pepper and Worcestershire sauce, and boil five minutes. Regulate the amount of beef stock so that when the stew is ready to serve there will be about 6 gallons. Add the oysters just before serving.

354. *Pea soup* (for 60 men).

Ingredients used:
6 No. 2 cans green peas, or equivalent of fresh peas.
6 gallons beef stock.

Allow to boil 10 minutes if canned peas are used, or until well done in the case of fresh peas. Regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons.

355. *Potato chowder* (for 60 men). Prepared the same as corn chowder, except that no corn is used, and 10 pounds of potatoes are used instead of 6 pounds.

356. *Potato soup* (for 60 men).

Ingredients used:
10 pounds potatoes, diced.
6 gallons beef stock.
1 pound onions, chopped and browned.
1 can evaporated milk.
1 pound fat, butter preferred.
1 pound flour, browned in fat.

Boil the potatoes in the stock until well done; pass through a colander and let come to a boil again; thicken with the flour batter

and season to taste; add the chopped onions and evaporated milk. Regulate the amount of beef stock so that when the soup is ready to serve there will be about 6 gallons. Serve hot.

357. *Purée of beans* (for 60 men).

Ingredients used:
- 6 pounds issue beans.
- 6 gallons beef stock.
- 5 pounds soup bone.
- ½ pound bacon, diced and browned.
- 1 pound fat, butter preferred.
- 1 pound flour, browned in fat.

Place the beans, bacon, bone, and stock in the boiler, and let simmer over night, or until the beans are thoroughly broken to pieces. Pass through a colander, and place on the stove again; add the flour batter and season to taste; allow to simmer at least one hour before serving. Regulate the amount of beef stock so that, when the soup is ready to serve, there will be about 6 gallons.

358. *Purée of brown beans* (for 60 men). Prepared same as purée of beans, except use 6 pounds brown beans in place of 6 pounds issue beans.

359. *Purée of carrots* (for 60 men). Prepared same as purée of beans, except use 10 pounds diced carrots braised or fried in a little fat until brown instead of 6 pounds of beans.

360. *Purée of green peas* (for 60 men). Prepared the same as purée of beans, except use 6 pounds of green peas instead of 6 pounds of beans.

361. *Purée of green peas and tomatoes* (for 60 men). Prepared the same as purée of beans, except use two No. 3 cans of tomatoes and 5 pounds of green peas instead of 6 pounds beans.

362. *Purée of lima beans* (for 60 men). Prepared the same as purée of beans, except use 6 pounds lima beans instead of 6 pounds of issue beans. (If desired, add one or two cans of evaporated milk just before serving.)

363. *Purée of potatoes* (for 60 men).

Ingredients used:
- 12 pounds potatoes, diced fine.
- 6 gallons beef stock.
- 1 pound bacon, diced and browned.
- 1 pound fat, butter preferred.
- 1 pound flour browned in fat.

Add the diced potatoes and bacon to the beef stock and boil until they are completely broken to pieces, seasoning with pepper, salt, and celery salt, etc. A stalk of celery may be added if desired. Thicken slightly with the flour batter, when it will be ready to serve. Regulate the amount of beef stock so that, when the soup is ready to serve, there will be about 6 gallons.

364. *Purée of split peas* (for 60 men). Prepared the same as purée of beans, except that 6 pounds of split peas are used instead of 6 pounds of beans. (If desired, two cans of evaporated milk may be added just before serving.)

365. *Purée of vegetables* (for 60 men). Prepared the same as purée of beans, except that 12 pounds of mixed vegetables are used in place of 6 pounds of beans.

366. *Rice soup* (for 60 men).

Ingredients used:
- 3 pounds rice.
- 6 gallons beef stock.
- ½ pound chopped onions, browned.
- 1 pound bacon, diced and browned.

Wash the rice well; then add it, together with the bacon and onions, to the stock, and allow to boil for one-half hour.

367. *Rivel soup* (for 60 men).

Ingredients used:
- 3 pounds flour.
- 6 eggs.
- 6 gallons beef stock.

Rub the eggs and flour together in the hands until well mixed; then add the rivels thus made to the stock and allow to boil for one-

quarter of an hour. Season with pepper and salt. One can of tomatoes may be added if desired.

368. *Spaghetti soup* (for 60 men). Prepared the same as macaroni soup, except use 3 pounds of spaghetti in place of 3 pounds of macaroni.

369. *Split-pea soup* (for 60 men).

Ingredients used:
- 6 pounds split peas.
- 6 gallons beef stock.
- 1 pound flour.
- 1 pound bacon, diced and browned.

Add the peas and the bacon to the beef stock and let simmer over night, thicken with a flour batter; season to taste and serve hot. Regulate the amount of beef stock so that, when the soup is ready to serve, there will be about 6 gallons.

370. *Tomato soup* (for 60 men).

Ingredients used:
- 3 gallons tomatoes, or
- 8 No. 3 cans tomatoes.
- 3 gallons beef stock.
- 1 pound bacon.

Mix all the ingredients well and boil for one and one-half hours; remove the bacon and press the soup through a colander to separate the skins and seeds of the tomatoes. Replace on the range and thicken slightly with a flour batter; salt and pepper to taste, and color lightly with brown sugar. Regulate the amount of beef stock so that, when the soup is ready to serve, there will be about 6 gallons. Overripe or bruised tomatoes may, to prevent waste, be used in the preparation of this soup.

371 *Tomato and rice soup* (for 60 men).

Ingredients used:
- 3 cans tomatoes.
- 2 pounds rice.
- 5 gallons beef stock.

Mix all ingredients well; season with salt and pepper and a small piece of garlic; allow to boil from one to two hours, when it will be ready to serve. Regulate the amount of beef stock so that, when ready to serve, there will be about 6 gallons.

372. *Vegetable soup* (for 60 men).

Ingredients used:
- 1 pound cabbage.
- ½ pound onions.
- 1 pound potatoes.
- ½ pound rice.
- 1 can tomatoes.
- 1 ounce chopped parsley.
- 5 gallons beef stock.

Mix all ingredients well; season to taste with salt and pepper; boil for one hour or more, when it will be ready to serve. Regulate the amount of beef stock so that, when the soup is ready to serve, there will be about 6 gallons. The parsley should generally be added just before serving. Many other vegetables may be substituted for those given above.

373. *Vermicelli soup* (for 60 men). Prepared the same as macaroni, except use 3 pounds of vermicelli instead of 3 pounds of macaroni.

374. *Welsh rarebit* (for 60 men).

Ingredients used:
- 6 gallons beer, or beef stock.
- 6 pounds grated cheese, American preferred.
- 1½ pounds fat, butter preferred.
- 1½ pounds flour, browned in fat.

Allow the beer or stock to come to a boil, and add the grated cheese. Make a batter of the butter and flour, and, when smoking hot, add to the mixture. Season with salt and cayenne pepper. Serve in soup tureens with crackers or croutons.

MEATS.

375. *Bacon, boiled* (for 60 men).

Ingredients used:
- 15 pounds bacon.

Cut in pieces weighing about 5 pounds each, wash thoroughly, place in cold water, and boil for two hours.

376. *Bacon, fried* (for 60 men).

Ingredients used:
15 pounds bacon.

Cut about five slices to the inch; place in a bake pan and pour boiling water over it and allow to stand for five minutes. Drain off all the water and fry on a hot range or in a quick oven; when done, remove from the range and allow to cool slightly before serving.

377. *Bacon and cabbage* (for 60 men).

Ingredients used:
15 pounds bacon, sliced.
30 pounds cabbage.

Wash and clean the cabbage; place in the boiler with sufficient water to cover it; place bacon on top of the cabbage; boil two hours. To prevent discoloration, the boiler should be ventilated during the process of cooking. Serve hot with the bacon on top of the cabbage.

378. *Beef à la mode* (for 60 men).

Ingredients used:
20 pounds beef rounds, bottom preferred
1 pound bacon or pork.
1 pound fat, butter preferred.
1 pound flour, browned in fat.
3 gallons beef stock.
1 pound carrots, diced.
4 large issue pickles.
2 cans tomatoes.

Cut the beef into slices of about 5 pounds each and the bacon (or pork) into strips about the size of the little finger and the length of the pieces of beef; roll the strips of pork in garlic and cayenne pepper and cut slits in the pieces of beef with a narrow-bladed knife with the grain of the meat, and insert about four of these strips of bacon with slices of pickle in each piece of beef. Make a gravy of the flour, fat, and beef stock; place in a medium-hot oven and cook slowly for

about three hours, or until well done. Remove the meat and slice across the grain, replace in the gravy, and cook a little longer; or slice and place on a platter with the gravy poured over it, in which case it is ready to serve. It should be served with hot gravy. The gravy should be very spicy; therefore, while preparing it season well with garlic, bay leaves, etc.

379. *Beef, boiled* (for 60 men).

Ingredients used:
20 pounds beef.

Cut into pieces weighing about 5 pounds each; cover with boiling water in order to seal it and retain the juices, and boil from two to three hours, according to the quality of the beef.

380. *Beef, braised* (for 60 men).

Ingredients used:
22 pounds beef.
1 pound onions, diced and browned.
2 pounds fat, butter preferred.
½ pound flour.

Dice the beef into 1-inch cubes; place the fat in a bake pan and allow to get hot; then put in the beef and onions; put on top of the range or in a quick oven and stir frequently for about 20 minutes. Sift the dry flour in and cook about five minutes; add sufficient beef stock to nearly cover the meat and stir frequently. Season with salt and pepper and cook until well done.

381. *Beef, corned* (for 60 men).

Ingredients used:
4 gallons water.
2 pounds sugar.
8 ounces saltpeter.
16 ounces salt.
60 pounds beef.

Dissolve and boil about 15 minutes; pour into a 15-gallon keg and allow to cool. The brine should be prepared in the evening so that

it will be given time to cool thoroughly before the meat is introduced. Cut the meat in pieces weighing about 5 pounds each and probe each piece with a steel at 1-inch intervals to allow the brine to penetrate all parts. Place the meat in the brine and keep at a temperature of from 50° to 60° F. from seven to nine days. While in the brine it should be removed at least three times, alternating the upper and lower pieces. If the beef used is not refrigerated beef, in hot weather it should be packed in cracked ice for 12 hours before corning. The above recipe is sufficient for corning 60 pounds. See paragraph 223.

To make spiced corned beef, place in the center of each piece of beef a small piece of garlic, and add to the brine 1 ounce each of cloves, whole peppers, and bay leaves.

To cook, use the recipe for boiled beef.

382. *Beef, curry* (for 60 men).

Ingredients used:
- 20 pounds beef.
- 1½ ounces curry powder.

Cut the beef into 1-inch cubes and place in a bake pan; cover with beef stock or water; season with salt, pepper, and curry powder. When nearly done, thicken slightly with a flour batter. Serve hot.

383. *Beef dressing* (for 60 men).

Ingredients used:
- 6 pounds meat scraps of any kind.
- 8 pounds bread.
- 1 pound onions, browned.
- ½ gallon beef stock.

Run the meat scraps through a chopper; soak the bread in cold water and squeeze well with the hands; mix the meat and bread with the onions; season with salt, pepper, and sage, add sufficient beef stock to make about the same consistency as hash; and spread 2 or 3 inches deep over the bottom of a well-greased pan. Spread a little grease over the top and bake for 40 minutes in a medium oven. Serve hot with beef and gravy.

384. *Beef, chipped* (for 60 men).

Ingredients used:

15 pounds chipped beef.
1 pound fat, butter preferred.
1½ pounds flour, browned in fat.
2 cans evaporated milk.
1 bunch parsley.
¼ ounce pepper.
6 quarts beef stock.

Melt the fat in the pan and add the flour; cook a few minutes; mix the milk and beef stock, or water; stir the batter in slowly to prevent lumping; add the beef and cook a few minutes. Add the parsley and serve on toast.

If the beef is very salty, it should be scalded before cooking.

385. *Beef fritters* (for 60 men).

Ingredients used:

10 pounds cooked beef.
5 pounds bread.
2 pounds onions.

Soak the bread and remove the water by squeezing with the hands; grind the meat fine and add to the bread; mince the onions and mix all together; salt and pepper to taste; mold into cakes of about 3 ounces each; roll in flour and fry in deep grease until brown. Serve hot with tomato sauce or tomato gravy.

386. *Beef hash* (for 60 men).

Ingredients used:

15 pounds potatoes.
2 pounds onions.
15 pounds meat scraps, etc.
6 quarts beef stock.

Chop the whole fine and add the beef stock until the mixture is of the consistency of ordinary mush; place about 3 inches deep in a well-greased pan; smooth the top evenly with the hand and grease slightly; bake in a quick oven for 1½ hours, or until done.

Scraps of beef or pork, or a mixture of both, or corned beef may be used for making hash.

In hot weather, or when the ingredients have been held over for some time, the hash should be spread not more than 2 inches deep in a pan and first placed in a quick oven, about 10 counts, until the hash is thoroughly heated through, about 20 minutes; then the temperature may be reduced until the cooking is done.

Beef hash with green peppers. Prepare in the same manner as beef hash, adding 2 or 3 pounds of green peppers chopped about the size of a Lima bean.

387. *Beef hearts, stewed* (for 60 men).

Ingredients used:

18 pounds beef hearts.
1 No. 3 can tomatoes.
1 pound onions, fried.
1 pound flour.
3 gallons beef stock.

Make a gravy of the flour and beef stock and put on the range; meanwhile split the hearts in two and wash them thoroughly, and when the gravy comes to a boil put in onions, tomatoes, and beef hearts. Cook in the oven or on top of the range until done; slice and serve on a platter with the gravy poured over them. Season with cloves, allspice, bay leaves, a little garlic, pepper and salt while cooking.

388. *Beef hearts, stuffed* (for 60 men).

Ingredients used:

18 pounds beef hearts.
6 pounds bread crumbs.
2 pounds onions, browned.
1 pound bacon, sliced.
¼ pound fat.

Wash and clean the hearts and allow to drain; soak the bread crumbs, squeeze out well, and mix with the fried onions. Season the mixture with thyme, pepper, and salt, and stuff the holes in the hearts with this dressing. Place the hearts in a bake pan with a slice of bacon on top of each, and bake in a moderately hot oven. After the hearts have become somewhat sealed, so as to retain the juices, the temperature of the oven should be gradually reduced. Before serving, place the dressing on a platter, slice the hearts thin, and spread over the dressing.

389. *Beef loaf* (for 60 men).

Ingredients used:

12 pounds beef.
3 pounds bread crumbs.
2 pounds onions, browned.
1 pound flour.
1 or 2 quarts beef stock.
½ pound bacon.

Grind the meat through a chopper; soak the bread in water and then squeeze out well; mix the meat, bread crumbs, and onions together; season with salt and pepper; make into loaves about the shape of an egg divided lengthwise and place in a bake pan a few inches apart. Then make a batter of the flour and beef stock, rub this over the loaves, and cook in a slow oven. A slice of bacon may be placed on the top of each loaf, if desired, and serve hot with gravy.

390. *Beef potpie* (for 60 men).

Ingredients used:

15 pounds beef.
15 pounds potatoes.
3 pounds onions.
2 pounds lard,
5 pounds flour.

Cut the beef into 1-inch cubes; stew until nearly done; add potatoes and onions, cut into about 1-inch cubes. When nearly done, pepper and salt to taste and add sufficient stock to cover vegetables and meat and thicken slightly with flour batter. When done, cover with crust made of the lard, flour, and baking powder, cut out like biscuits, and bake until done. The amount of beef may be reduced to 10 pounds and vegetables increased accordingly.

Any kind of lean meat—mutton, veal, venison, young goat, chicken, wild fowls, and rabbits—may be used in making potpies.

391. *Beef pot roast* (for 60 men).

Ingredients used:

22 pounds beef.
2 pounds onions.
½ pint vinegar.
1 clove garlic.

Cut the beef into pieces weighing about 5 pounds each; place in a large Dutch oven, or camp kettle, with cover; season well; add onions and vinegar, and place in a hot oven, about 12 counts, for about 20 minutes; then reduce the temperature and cook slowly until well done. The meat should be turned three or four times while cooking. When done, remove from the kettle and slice; make a thick gravy in the same pot; place the meat on the platters and pour the gravy over it. Left overs from this recipe may be used in hash, potpies, etc.

392. *Beef, roast* (for 60 men).

Ingredients used:
25 pounds beef.
1 quart beef stock.

Cut the beef into pieces weighing about 5 pounds each; place in a quick oven and cook for about one-half hour; then dredge with salt, pepper and flour, and add 1 quart of beef stock, adding more later if necessary. The roast will then be sealed so as to retain the juices and the temperature of the oven should be allowed to diminish gradually, cooking the meat slowly from one to two hours more. Baste frequently while roasting. Just before serving, cut into thin slices, across the grain, and retain all chunks of fat, bones, tendons, etc., as they will not be consumed if served, but can be used to great advantage in the kitchen. Serve hot with gravy.

393. *Yorkshire pudding* (for 60 men). Roast the beef in the usual way. When it is done pour off and save half the juice, which is used in making gravy.

Ingredients used:
6 pounds flour.
5 ounces baking powder.
1 ounce salt.
Pinch of cayenne pepper.

Mix all ingredients dry; add sufficient flour and water to make a dough somewhat softer than used for biscuits. Drop the dough from the hand into the pan in which the beef was roasted, keeping each handful about 1 inch apart. Bake in a medium oven. The above recipe will be improved by adding two to six eggs to each pound of

flour used; whip eggs to foam, and mix in well. By substituting milk for water the product is greatly improved.

394. *Beef rolls* (for 60 men).

Ingredients used:
8 pounds meat scraps, etc.
3 pounds bread crumbs.
5 pounds flour.
1 pound onions, browned.
1 ounce chili pepper.

Pass the meat scraps through a chopper; soak the bread crumbs and squeeze well; mix well the meat, bread, and seasoning of salt, onions, chili pepper, etc. Make a pie crust or rich biscuit dough and roll into long strips as for apple rolls. Spread the meat and bread mixture over the dough; roll up in lengths equal to that of the bake pan; garnish the top with beaten eggs; and bake in a slow oven.

395. *Beef, soft roast* (for 60 men).

Ingredients used:
20 pounds beef.
1 pound onions, fried brown.
2 pounds flour.

Use meat from the chuck, brisket, shoulder, or other inferior part of the carcass; cut into 5-pound pieces; make a gravy of beef stock and flour batter; season well with pepper and salt; put the meat and onions in the gravy, and cook in a moderate oven until done. The gravy should cover the meat in the pan about one-half inch, the same as in the preparation of beef à la mode. Slice the meat and serve on a platter, with hot gravy poured over it.

396. *Beef, Spanish* (for 60 men).

Ingredients used:
20 pounds beef.
2 No. 3 cans tomatoes.
5 pounds onions, chopped.

Cut the beef into 1½ inch cubes; fry in a little hot fat for about five minutes; pour off the fat and add the tomatoes and onions.

Add sufficient beef stock to cover the meat; thicken with a flour batter; season with salt and pepper, and allow to simmer for two hours. Serve hot.

Scraps of cooked meat may be used to the extent of one-half of the meat component, in which case it should be allowed to cook for but one-half hour.

397. *Beefsteak potpie* (for 60 men).

Ingredients used:
20 pounds beefsteak, cut small.
7 pounds flour.
1 pound fat, butter preferred.
3 gallons beef stock.
2 pounds onions, fried.

Heat the fat until it smokes; add 1 pound of flour (browned in the fat), and add slowly the 3 gallons of stock or enough to make a thin gravy; then add the onions. Season with pepper and salt; roll the small pieces of steak in flour and fry in deep lard, putting each piece in the gravy immediately after it is fried. Make a regular biscuit dough of about 6 pounds of flour; cut out the biscuits; place them over the top of the steak and gravy, and allow them to brown in the oven. Serve hot.

Almost any quality of meat may be utilized in this recipe.

398. *Beefsteak* (for 60 men).

Ingredients used:
20 pounds beefsteak, with bones and fat removed.

Cut the steaks into pieces weighing about 3 ounces each, and if tough beat each piece with the flat side of a cleaver; place a small quantity of flour in a dish pan and season well with pepper and salt; roll each piece of steak well in the flour and fry in deep grease smoking hot, being careful not to cool it by the introduction of too much meat at a time. The total amount of meat frying should never exceed one-fourth of the weight of the grease. Remove the steaks to a colander, and allow to drain a short time. If necessary the frying may be done in shallow lard, but deep lard is preferred.

399. *Beefsteak and mushrooms* (for 60 men).

Ingredients used:

20 pounds beefsteak, without bones or fat.
6 No. 2 cans mushrooms.
1 pound butter.
1 pound flour.

Prepare the beefsteak in the ordinary manner; place the butter n a frying pan; when smoking hot, pour the flour into the pan and tir well to prevent it from burning. After it becomes smooth pour n the liquor from the mushrooms, beating well with a wire whipper; dd the diced mushrooms and boil for five minutes. Place the fried teak on the platter and pour the mushrooms and gravy over the teak. Serve hot.

400. *Beefsteak and onions* (for 60 men).

Ingredients used:

20 pounds beefsteak, without bones or fat.
12 pounds onions, sliced.
1½ pounds fat.
2 quarts beef stock.

Prepare the beefsteak in the ordinary manner. Place the fat n a large bake pan; add the sliced onions and beef stock, season well ith pepper and salt; set over a hot fire until the stock is entirely vaporated, when the onions will be nearly done; allow to brown lightly, stirring frequently. Serve the steak on a platter and over it with onions.

401. *Beefsteak, Hamburg* (for 60 men).

Ingredients used:

20 pounds beef.
3 pounds onions.

Run the meat through a chopper twice; chop the onions fine with nives; mix well and season with pepper and salt; mold into steaks bout 3 inches in diameter and about one-half inch in thickness; ll in flour and fry in deep lard. Serve hot with gravy.

402. *Beef, Turkish* (for 60 men).

Ingredients used:
18 pounds beef.
5 pounds rice.
1 pound fat, butter preferred.
1 pound flour, browned in fat.
2 pounds onions, browned.
3 gallons stock.

Make a batter of the flour and fat, adding the stock and onions to make a gravy. Cut the meat in 1-inch cubes; season with cayenne pepper, salt, and a little garlic; roll in flour and fry in deep lard. After the meat is fried, put immediately in the gravy and allow to simmer for two hours. While cooking it may be necessary to add a little more stock. Meanwhile boil the rice (and fry if desired) and place around the platter, making a nest in the center into which the stew is poured.

403. *Brains and eggs* (for 60 men).

Ingredients used:
15 pounds beef brains.
2 pounds bacon.
2 pounds onions, chopped fine.
40 eggs.
2 ounces salt.
½ ounce pepper.

Clean and wash the brains well and dice into about one-half inch cubes; dice the bacon into small cubes or run it through a meat chopper; fry the bacon and onions until brown; add the brains and cook until nearly done (about three-quarters of an hour); add the eggs, beaten slightly, and fry about 10 minutes more. Season with salt and pepper. Serve on platters covered with small bits of dipped or dry toast, if desired.

This preparation may be enriched by the addition of more eggs reducing the amount of brains in proportion.

404. *Brains without eggs* (for 60 men).

Ingredients used:
20 pounds beef brains.
5 pounds diced onions.
3 pounds diced bacon.

After washing the brains, dice them into about one-half inch cubes. Fry the bacon to a golden brown and add the brains. Cook in the oven about half an hour, after which add the diced onions and season well with chili powder and salt. Cook about half an hour longer. Serve on toast. This dish can be prepared in one hour and a half in a 12-count oven.

405. *Chicken, curry of* (for 60 men).

Ingredients used:
25 pounds chicken.
1½ ounces curry powder.
6 pounds rice.
1 quart flour (if desired for batter).

Cut each chicken into about 10 or 12 pieces; wash well and place in a large bake pan, covering with about 3 inches of water. When it reaches the boiling point, allow to simmer two hours or until done. Season to taste with salt after the chicken has cooked about an hour. Meanwhile make a paste of the curry powder and about a quart of broth from the pan, add to the chicken and when served garnish the platter with boiled rice. If desired, the mixture may be thickened by the addition of a flour batter.

406. *Chicken fricassee* (for 60 men).

Ingredients used:
25 pounds chicken.
2 pounds butter.
1 pound flour.
1 stalk celery.
12 hard-boiled eggs.
2 cans evaporated milk.
3 gallons beef stock.

Divide each chicken into about 12 pieces, natural divisions. Make a gravy, using 1 pound butter, 1 pound flour, and the beef stock. Pepper and salt the chicken well; roll in flour and fry in deep lard; and put it in the gravy when fried. Dice the celery and add to the gravy; season well with celery salt and allow to simmer until done. Before serving add 2 cans of evaporated milk and 1 pound of butter. Care should be taken to break up the chicken as little as possible. When adding the butter and milk, have the gravy so thick that the butter will be taken up by it and not float on top. Serve on a platter, with or without rice. Old fowls may be utilized to good advantage in this recipe.

407. *Chicken, fried* (for 60 men).

Ingredients used:
45 pounds chicken.
6 eggs, beaten.
2 pounds cracker meal.

Fowls over 6 months old should not be fried. Divide each chicken into about 10 pieces; dip each piece in the beaten eggs and then in the cracker dust, and if the mixture does not adhere to the pieces sufficiently, repeat the operation. Fry in deep lard at a smoking temperature until brown. Drain well in a colander and place in a pan in the oven or on the mantel of the range to keep warm until served.

408. *Chicken, roast* (for 60 men).

Ingredients used:
45 pounds chicken.
2 pounds minced onions, browned.
8 pounds bread crumbs.
8 pounds potatoes, mashed.
1 pound flour.
1 pound fat, butter preferred.

Pick and clean chicken well, saving the heart, liver, and gizzard, which should be chopped fine and used in the gravy or stuffing. Fill space vacated by entrails and craw with stuffing. Sew up chicken with strong thread and bend the wings under the back and tie down to the body. Make a batter with the flour and fat,

seasoning it with salt and pepper, and rub the chicken with it before placing in oven. After the chicken has been in the oven about 20 minutes, add a little hot water and baste frequently until done. This generally requires about two and one-half hours, depending upon the quality of the fowl. When the flour is brown check the heat. When done the legs can be easily separated from the body.

To make the stuffing.—Moisten the bread crumbs with water; mix with potatoes, onions, and giblets; season with pepper and salt, sage, thyme, or other flavors; stuff well into the chicken. The bread may be soaked in oyster liquor and oysters added to the stuffing; or celery, currants, or raisins may be used instead of onions. Lemon juice or nuts may be added. This stuffing may be used with any fowl or fish.

409. *Chicken stew with dumplings* (for 60 men).

Ingredients used:
- 25 pounds chicken.
- 15 pounds potatoes, diced.
- 5 pounds flour for dumplings.

Cut each chicken into 10 or 12 pieces and place in sufficient hot water to cover it; boil until nearly done. Then thicken the stew slightly with a flour batter; season with salt and pepper; add dough for the dumplings and allow to cook 10 or 15 minutes, depending on the size of the dumplings. If desired, the amount of dumplings may be increased and the amount of chicken correspondingly reduced. Time to prepare, about two and one-half hours.

410. *Chili con carne* (for 60 men).

Ingredients used:
- 15 pounds meat scraps.
- 3½ ounces chili peppers, ground.
- 3½ quarts beans, chili.

Trim all the fat from the meat and chop into half-inch cubes; place in a bake pan and fry in the same manner as beefsteak, but using a smaller amount of fat; cover with about 1 inch of beef stock; add the ground chili pepper and salt to taste. Run two-thirds of boiled chili beans through a meat chopper and mix all together;

then add the remaining third of the beans whole. While cooking it may be necessary to add more beef stock to replace that lost by evaporation. When ready to serve, there should be sufficient beef stock to cover the preparation. Baked beans may be substituted for chili beans.

411. *Duck, roast* (for 60 men). Prepared the same as roast chicken.

412. *Game, small.* Pigeons, doves, etc., should, for Army messes, be made into potpies. They are prepared in the form of a stew and served on a platter over toast.

413. *Goose, roast* (for 60 men). Prepared the same as roast chicken.

414. *Ham, boiled* (for 60 men).

Ingredients used:
20 pounds ham.

Wash and scrape the ham, removing any part that may be decayed. The water in which hams are cooked should never be allowed to reach the boiling point. Hams may be cooked five hours at 200° F. or seven hours at 180° F. Absolute cleanliness of meats, water, and cooking vessels must be the rule. Too much cooking and too little are both to be avoided. Place hams in near boiling water 5 or 10 minutes, after which reduce the water to a tepid temperature by the introduction of cold water, then heat to 180° F. and keep at that temperature until the hams are cooked. This process requires about 20 minutes to the pound. Hams thus cooked are practically steamed, as the moisture in the flesh is converted into vapor and the steaming process is taking place in the meat all the time. Skim all the impurities from the water as they arise. Let the hams cool in the water in which they were cooked.

415. *Ham, fried* (for 60 men).

Ingredients used:
25 pounds ham.

Trim off most of the fat and slice thin; if salty, parboil; fry in its own grease in the oven or on the top of the range.

416. *Hash, chop suey* (for 60 men).

Ingredients used:
4 pounds fat bacon, chopped fine.
1 gallon onions, chopped fine.
10 pounds cooked beef, coarsely ground.
10 pounds turnips, cooked and chopped.
3 cans corn.
1 ounce chili powder.
1 gallon soup stock.
2 cans tomatoes.

Place the bacon in a large bake pan and put in the oven until well rendered; add the onions and fry until half done; add the other ingredients and bake for one hour.

417. *Head cheese* (for 60 men).

Ingredients used:
20 pounds beef.
10 pounds pork.

Use any kind of beef scraps; of the pork, use snout, ears, skin, feet, etc. Place in separate pots and boil. When the pork is done, remove and pass through a meat chopper, allowing the beef to continue boiling until well done. Remove the beef and dice in one-half inch cubes; mix the whole and season with pepper, salt, vinegar, and cloves, adding sufficient stock in which the meat was cooked to give it the consistency of a thick stew. Replace on the range, boil five minutes longer, and pour in a pan about 4 inches deep; cool in a temperature of 50° to 60° F., and it will be ready to serve the next day.

418. *Liver and bacon in gravy* (for 60 men).

Ingredients used:
15 pounds liver.
8 pounds bacon.
6 pounds onions, browned.
2 pounds flour.
4 gallons stock.

Slice the bacon thin and wash in boiling hot water, not allowing it to remain in the water more than five minutes; fry quickly until medium well done. Roll the slices of liver in flour and fry in the fat left after frying the bacon; add the liver and bacon to the stock and bring to a boil; thicken slightly with a flour batter; add the onions and salt to taste. Serve hot.

419. *Mutton, boiled* (for 60 men). Prepared the same as beef. Mutton is usually used for roasts or stews.

420. *Mutton chops* (for 60 men).

Ingredients used:
20 pounds mutton loin.

Cut in slices weighing from 2 to 4 ounces, roll in flour, corn meal, or bread crumbs and fry the same as beefsteak. Serve hot. Generally served for breakfast or supper.

421. *Mutton potpie* (for 60 men). Prepared the same as beef potpie, except use 15 pounds of mutton instead of beef.

422. *Mutton, roast* (for 60 men). Prepared the same as beef roast, except use 25 pounds of mutton instead of beef, and cook thoroughly done.

423. *Mutton stew* (for 60 men).

Ingredients used:
15 pounds mutton.
20 pounds potatoes.
4 pounds onions.

Cut the mutton into 1-inch cubes; add sufficient beef stock or cold water to just cover the mutton; allow to simmer slowly for one and one-half hours, or until the mutton is done; add the vegetables, and cook until done; season to taste with pepper and salt, and thicken slightly with a flour batter. Serve hot, with or without dumplings.

424. *Omelet* (for 60 men).

Ingredients used:
120 eggs.
4 cans evaporated milk.
1 pound drippings.

Mix the eggs and evaporated milk; pepper and salt to taste; add 1 quart of water and whip well; put 1 pound of bacon drippings or other fat into the bake pan, and when the fat begins to smoke pour in the mixture (not more than 3 inches deep) and bake in a medium oven.

Cheese omelet.—Add to the mixture before cooking about 3 pounds of diced cheese.

Ham omelet.—Add to the mixture before cooking about 3 pounds of finely chopped cooked ham.

Tomato omelet.—Prepare in the same manner as the plain omelet, substituting two small cans of tomatoes for the water.

425. *Pigs, little, roasted* (for 60 men).

Ingredients used:
40 pounds little pigs.

Clean the pigs and scrape off the hair, stuff with an ordinary dressing, and sew up. Slit the throat, and pass the forelegs through to the front; double the hind legs under, the pig lying down on its stomach. Season well on the outside. If practicable, place in a pan so that no part of the pig projects above the top. Pour into the pan about 1 inch of beef stock. Roll out a dough made of water and flour and spread over the pig, moistening the sides of the pan with water so that the crust will adhere to it. Bake slowly three or four hours.

426. *Pickled pigsfeet* (for 60 men).

Ingredients used:
25 pounds pigsfeet.

These are purchased ready to serve cold and are well liked if not served too often. They may be rolled in batter and fried to a golden brown.

427. *Pork chops and steaks* (for 60 men).

Ingredients used:
20 pounds lean pork.

Cut into pieces about one-half inch thick and weighing from 3 to 5 ounces each; fry in the same manner as beefsteak until done. Or they may be breaded in flour or corn meal and fried. Serve hot with

sauce (tomato preferred) or some kind of salad. After trimming the fat from the hog, about three-fourth of the meat can be cut into chops and steaks.

428. *Pork, corned, with cabbage* (for 60 men).

Ingredients used:
20 pounds corned pork.
25 pounds cabbage.

Wash and clean the cabbage; place in a boiler with sufficient water to cover the cabbage; place about one-third of the pork on top of the cabbage, cooking the remainder in a separate boiler. Allow all to simmer about two hours. To prevent discoloration, the boiler should be ventilated during the process of cooking. Serve hot, the pork being sliced and placed on top of the cabbage.

429. *Pork, roast* (for 60 men).

Ingredients used:
25 pounds lean pork.

Cut into pieces weighing about 5 pounds each; make slits along the sides of each piece about one-fourth of an inch deep and one-half inch apart; place in a medium hot oven and cook until well done, about two and one-half hours. Season to taste while cooking with pepper, salt, and vinegar. Slice and serve hot with apple sauce.

430. *Pudding, English beef* (for 60 men).

Ingredients used:
12 pounds beef.
8 pounds flour.
8 ounces baking powder.
1 pound lard.
2 ounces salt.

Run the meat through the chopper twice. Season with salt, pepper, and two cloves of garlic. Braise in fat. Make a dough somewhat stiffer than a biscuit dough, with the flour, baking powder, lard, and salt. Roll out the dough one-fourth inch thick and 20 inches wide; spread meat over the top about the same thickness as the dough. Roll up the meat in the dough as though it were a jelly roll, rolling a little tighter. Have six duff cans well greased and cut

the roll in such lengths as to fill the cans about three-fourths full. Steam, same as plum duff, from five to six hours. After the cans are removed from the boiler allow them to stand about 10 minutes before emptying. Serve with brown or onion gravy.

431. *Sausage, bologna, with casings removed* (for 60 men).

Ingredients used:
20 pounds bologna sausage.

Slice about 1 inch thick; dip in batter and fry in deep lard; serve hot; or slice an inch thick; braise with onions in the oven; serve hot. It may also be served cold with salad or made into sandwiches. It is cheaper than beef and will be relished if prepared not oftener than once a week.

432. *Sausage, liver, with casings removed* (for 60 men).

Ingredients used:
20 pounds liver sausage.

This generally comes in small casings. If in this form cut about 2 inches in length, remove casings, dip in egg batter, roll in crumbs or cracker dust, then fry in deep lard. When supplied in large casings it is better to cut it in half-inch slices, and prepare in the same manner. It may be served with a salad, or bologna, for sandwiches. Blood sausage may be prepared and served in the same manner.

433. *Sausage pork*, 65-pound mixture.

Ingredients used:
40 pounds pork.
25 pounds beef.
1½ pounds salt.
6 ounces black pepper.
1 ounce coriander.
1½ ounce sage.
1 pint vinegar.
1 clove garlic.

Dice the pork in 1½-inch squares. Grind the beef and mix with the pork, add seasoning and mix well; then grind again. The more thoroughly the sausage is mixed the better it will be.

This should stand three days in a temperature under 60° F. before being used.

434. *Sausage, pork, in blankets* (for 60 men).

Ingredients used:
20 pounds link sausages.
1 egg beaten.
1 pound lard.
3 pounds flour.
1 ounce salt.

Make a dough of the three last-named articles and roll out as for pie crust; inclose each link separately, or two links in one piece of dough; garnish with the egg and a little water and bake until a delicate brown.

435. *Sausage, Vienna* (for 60 men).

Ingredients used:
20 pounds Vienna sausage.

Place in boiling water, but do not allow to boil after introducing them, as this causes the skins to crack and look unsightly when served and injures the flavor. Long cooking also injures the quality and sausages should not be put into the water more than three-fourths of an hour before serving.

Sausage, Vienna, in blankets.—Prepare in the same manner as pork sausage, or fry in deep lard if desired.

436. *Stew, pan* (for 60 men).

Ingredients used:
15 pounds beef, cooked and diced.
15 pounds potatoes, boiled and diced.
4 pounds onions, chopped.

Mix the beef, potatoes, and onions and season well. Put in a well-greased bake pan, spreading to a depth of about 3 inches; add sufficient beef stock to cover the mixture; bake in a medium oven until nicely browned. When it is introduced into the oven, the mixture should resemble somewhat a hash. It should not be as watery as the ordinary stew. All potatoes left over, except those fried, may be utilized in this stew. Left over parts of roasts and broth gravy may be used.

437. *Stew, el rancho* (for 60 men).

Ingredients used:

12 pounds meat, fresh, without bone and but little fat, cut in about 1½-inch cubes.
10 pounds potatoes.
2 cans tomatoes, or
6 pounds fresh tomatoes.
3 pounds carrots, quartered lengthwise.
4 pounds turnips, sliced across grain.
4 pounds cabbage, with core in cabbage. Cut from top to bottom, in quarters or eighths, depending on size of head.
3 pounds onions, small preferred, whole.

Place the meat and such vegetables as turnips, carrots, and tomatoes in a large pan of cold water and bring slowly to a boil. Let simmer until the meat is tender and then add the remaining vegetables, season with salt, chili colorado, comina, and oregano, and cook until done. All ingredients should be thoroughly cooked but not broken into pieces in the cooking. The liquid should cover all the solids by about an inch. It should not be pasty, but of the nature of broth gravy, and have a reddish hue from the chili pepper and tomatoes. The stew is improved by a bunch of parsley chopped fine and added just before serving, and a few sprigs of parsley may be used for garnishing. Serve hot with vegetables whole as far as possible. Any fresh meat and any vegetable may be used in this stew.

438. *Spareribs* (for 60 men).

Ingredients used:

40 pounds spareribs.

Cut into pieces of about three ribs each. Wash clean and place in boiler, pour over them sufficient water to just cover; let them come to a boil, then drain off the water. Place in a bake pan about 3 inches deep; highly season with pepper, salt, and a little sage, stir and baste frequently. The oven should not be quite as hot as for beef. The ribs should be cooked well done. They may be parboiled, rolled in egg batter, and then fried in deep grease. They may also be served with sauerkraut; add the ribs about an hour before the kraut is done; thoroughly mix with the kraut to impart a better flavor.

439. *Stew, chop suey* (for 60 men).

Ingredients used:

15 pounds meat, cut in strips one-fourth inch thick and 1 inch long.
10 pounds onions, sliced.
4 stalks celery, sliced crosswise.
½ pint barbecue sauce.
2 gallons beef stock.

Braise meat, then add stock; let simmer from one-half to two hours. Thirty minutes before serving add onions, celery, and seasoning. This should be served with 5 pounds of rice.

Barbecue sauce (for 60 men).

Ingredients used:

1 pound onions, browned to a crisp.
3 ounces salt.
1 quart vinegar.
1 ounce ginger, nutmeg, allspice, all combined.
¾ ounce red pepper.
1 can tomatoes.
1 ounce saltpeter.

Mix all the above ingredients. Burn enough sugar to blacken 1½ quarts of water; it must be very black. Pour the blackened water over the whole and let come to a boil. Set in a cold place and, after the mixture has cooled, add 2 ounces of sugar. It costs about 20 cents to make 1 gallon of this sauce.

440. *Stew, beef, Irish* (for 60 men).

Ingredients used:

15 pounds beef.
13 pounds potatoes, peeled.
2 pounds onions.
½ pound flour.

Select cuts of beef suitable for stewing and boiling; dice into half inch cubes, or smaller, cutting all about the same size. Place in cold water and bring all to the boiling point slowly. Cook at a simmering temperature until well done. Dice the potatoes into

1-inch cubes, chop the onions and add both to the meat. It may be necessary to add beef stock or water, which should cover the ingredients in the pan about 1 inch. Season with salt and pepper and thicken with batter made of flour, stew slowly until the vegetables are thoroughly done. The stew will be improved by the addition of 2 pounds of diced carrots or turnips, or 2 cans of tomatoes. To make a pot pie out of this, add the dough for the covering soon after the vegetables come to a boil. Bake in a 15-count oven. To improve the appearance, the dough may be washed with a beaten egg, which will give it a golden brown color. With the above recipe, many kinds of fillings and condiments may be used. Serve hot in soup tureens.

441. *Turkey, roast* (for 60 men). Prepared the same as roast chicken, using 40 pounds of turkey.

442. *Tamales* (for 60 men).

Ingredients used:

8 pounds meat scraps.
1 pound corn meal.
5 pounds flour.
5 pounds mashed potatoes.
2 ounces salt.

Run the meat through a chopper and season with salt, chili pepper, oregano, comina seed, and garlic; moisten with beef stock. Meanwhile, make a stiff dough, using the flour and potatoes. Take about one-third of the dough and roll out on the table about the thickness of pie crust, using the corn meal for dusting; trim it on the side toward you and lay on the edge a roll of the mixture a little larger than the little finger; roll the dough about the meat and, when it meets, moisten slightly with water to make it hold together. Then cut from the sheet of dough remaining and repeat the operation. Cut the roll in pieces about as long as sausages and fry in deep lard. Serve hot with chili sauce.

443. *Turkish stew* (for 60 men).

Ingredients used:

18 pounds raw lean meat
5 pounds rice.

Dice the meat into 1-inch cubes, roll in flour, and fry brown in a little grease. Brown a few onions and add to the meat, cover the whole with beef stock and season with cayenne pepper, salt, parsley, and a little garlic. Cook slowly on top of the range, or in the oven, for about two hours. Boil the rice until the grains may be crushed between the fingers, but still retain their original form; drain off all the water; make a border of rice around the platter, leaving a crater into which the stew is poured. Serve hot.

444. *Veal cutlets* (for 60 men).

Ingredients used:
25 pounds veal.

Cut in slices weighing from 2 to 4 ounces, roll in flour, fry the same as beefsteak. Serve hot.

445. *Veal roast* (for 60 men).

Ingredients used:
25 pounds veal.

Prepared same as beef roast, except it must be cooked thoroughly done.

446. *Venison cutlets* (for 60 men).

Ingredients used:
25 pounds venison.

Prepared the same as veal cutlets.

447. *Venison roast* (for 60 men).

Ingredients used:
25 pounds venison, ham preferred.

Cut into pieces weighing about 5 pounds each; lard well every 2 inches, the strips of fat being well seasoned with pepper and salt, and, if desired, a little garlic, and roast in the same manner as beef, except that it should always be well done. Serve hot with gravy poured over it.

Other parts may be roasted in the same manner, but will require less cooking, according to the size of the pieces. Parts not suitable for roasts may be utilized in steaks, hash, stews, fritters, etc.

SAUCES FOR MEATS.

448. *Cranberry sauce* (for 60 men).

Ingredients used:
10 quarts cranberries.
2½ pounds sugar.

Wash and boil the berries well; put in a clean boiler with about 1 nch of water; cover tightly and boil until the berries break to pieces nd cover themselves with their juice; remove the lid and let simmer n order to dry them out. Sweeten with sugar, boil about five ninutes, and pour into an earthen or wooden vessel and cool. Serve old with chicken or turkey, or nearly any kind of meat or cake.

449. *Giblets sauce or gravy.* This should be made only when oultry is being prepared. Take the hearts and livers of the fowls nd boil about 15 minutes; cut up fine and add to the gravy in the an in which the fowls are roasting. Season with thyme, sage, epper, and salt, or celery salt, if desired. May be thickened vith a flour batter.

450. *Rheubarb sauce.*

Ingredients used:
20 pounds rhubarb.

Wash the rhubarb well and dice in one-half inch cubes and place n a clean boiler with about 1 inch of water; cover tightly and let team slowly for about one and one-half hours. Then remove the id and allow the water to evaporate for about an hour. Season vith sugar and serve with cake or meat, or use for filling pies.

451. *Tomato sauce.*

Ingredients used:
6 cans tomatoes.
1 pound onions, chopped.
½ ounce cinnamon.
¼ ounce cloves.
3 chili pods.
2 ounces salt.
2 ounces sugar.
½ pound butter.
½ pound flour.

Boil slowly all the ingredients, except the flour and butter, in 2 quarts of water for one and one-half hours. Remove from the range and run through a fine colander or sieve. Replace on the range and put the butter in a frying pan. When it becomes hot, add the flour, stir until smooth, and add to the sauce. Excellent for fish, meats, or croquettes. About 1 gallon.

FISH.

452. *Baked fish* (for 60 men).

Ingredients used:
30 pounds fish.
2 pounds bacon or salt pork.

Fish weighing from 5 pounds upward are preferred. Dress and place in a bake pan with three or four slices of bacon over each fish, and about 1 inch of water in the pan; season well with pepper and salt; place in a hot oven and bake one hour, basting frequently and allowing the oven to cool gradually while baking.

If desired, the entrails may be withdrawn from beneath the gills without cutting the belly open, and the fish filled with stuffing made by the recipe given in paragraph 408.

453. *Boiled fish* (for 60 men).

Ingredients used:
30 pounds fish.

Fish weighing from 5 pounds upward are preferred. Take a large bake pan half full of boiling water and place in a hot oven; place the fish in the water, add a little salt and bring to a boil soon as possible, using only sufficient water to barely cover the fish. Allow to simmer until the meat may be easily separated from the bone, ordinarily about one hour. Should be served with a cream sauce, or with butter melted over it. May be spiced to give any desired flavor.

454. *Codfish, salt, boiled* (for 60 men).

Ingredients used:
20 pounds salt codfish.

Break the fish into pieces weighing about 2 ounces each; allow to boil for 15 minutes to remove the salt, change the water and boil until done, ordinarily about 30 minutes. Serve hot with cream sauce.

455. *Codfish cakes* (for 60 men).

Ingredients used:
10 pounds salt codfish.
10 pounds potatoes, mashed.
12 eggs.

If whole cod is used, soak, boil, remove the bones, and pass through a meat chopper; mix with the potatoes and eggs; season to taste with pepper and salt, and mold into cakes weighing about 3 ounces each. Roll in cracker crumbs or flour and fry in deep fat. Serve hot with tomato gravy. These cakes may be improved by dipping in egg batter before frying.

456. *Cream sauce for codfish* (for 60 men).

Ingredients used:
1 pound fat, butter preferred.
4 cans evaporated milk.
½ pound onions, minced.
½ pound pickles, minced.
6 hard boiled eggs, minced if desired.

Thicken 1 gallon of boiling water with a flour batter and season well with pepper and salt; let come to a boil and add the fat, milk, onions, and pickles; whip well and spread over the fish on the platter. The sauce may be improved by the addition of 6 hard-boiled eggs, chopped fine.

Crab salad.—See Salads.

457. *Fried fresh fish* (for 60 men).

Ingredients used:
30 pounds fresh fish.

Clean and slice (or split) into pieces not more than 1 inch thick; season with salt and pepper, roll in flour and corn meal, and fry in deep lard until thoroughly browned. Serve hot with salad or pickles and, if practicable, tomato or Worcestershire sauce.

Lobster salad.—See Salads.

458. *Oysters, fried* (for 60 men).

Ingredients used:
360 oysters (6 to 8 quarts, according to size).
18 eggs.
4 pounds cracker meal.

Remove from can, or shells, and dry with a cloth; dip in egg batter and drop in a pan with cracker dust. After enough have been dropped in, shake pan well; take each one between the hands, press flat, and lay in the frying pan. Fry until slightly brown. Serve hot with tomato or Worcestershire sauce, and, if practicable, with slaw or salad.

459. *Oysters, scalloped* (for 60 men).

Ingredients used:
12 quarts oysters, or about six for each man.
3 pounds bacon, or butter if desired.
2 cans evaporated milk.
6 pounds bread, diced and toasted.

Dice the bacon and fry until crisp; add the oysters, allow to come to a boil and add the bread. Let stand about 15 or 20 minutes at very near boiling point and add the cream just before serving.

Oyster stew.—See Soups.

460. *Salmon cakes* (for 60 men).

Ingredients used:
12 cans salmon.
25 pounds mashed potatoes.

Mix well, adding a little beef stock and flour; season with salt and pepper; make into cakes of about 3 ounces each, roll in flour, fry in hot fat, and serve hot with tomato gravy or tomato sauce.

461. *Salmon hash* (for 60 men).

Ingredients used:
12 cans salmon.
25 pounds mashed potatoes.

Mix well, adding a little beef stock; spread 3 inches deep or less in a bake pan (slightly greased); season with salt and pepper, and allow to bake in a medium oven for 40 minutes or an hour. Serve hot.

462. *Spanish fish sauce* (for 60 men).

Ingredients used:
1 pound fat.
2 pounds minced onions.
4 minced tomatoes.
4 cloves garlic.
4 ounces chili colorado.
2 gallons beef stock.

Mix the onions, tomatoes, garlic, and chili; fry in grease until ell done; add 2 gallons of beef stock and boil about 10 minutes, icken slightly with a flour batter, and season with salt to taste. erve hot over the fish.

This sauce may also be used for boiled or baked fish and varinos inds of meats.

VEGETABLES.

463. *Asparagus* (for 60 men).

Ingredients used:
15 No. 2 cans asparagus, or
15 bunches fresh asparagus.

Open the cans and place them on the range where there is no anger of boiling; when hot, pour off the liquid and use it in prearing the cream sauce. Serve hot.

464. *Beans, baked* (for 60 men).

Ingredients used:
15 pounds beans, issue.
2 pounds bacon, diced.
5 ounces sugar, or
½ pint molasses.

Wash the beans thoroughly in cold water; drain and place in cold ater and boil 15 minutes; drain again and place the bacon, beans, igar (or molasses), 5 gallons of water, and salt to taste in the boiler r jar; place on the range and let come to a boil; after about 15 inutes, cover with a lid and place in the oven. If the beans are o be served for dinner, the above work should be attended to the receding evening, and the fire should be left so as to keep up a slow

heat for the greater part of the night. The first thing in the morning more water should be put in (if necessary), covering the beans about 1 inch. If the breakfast requires a hot fire, the oven door should be left partly open, so that the beans will only simmer. If the oven can not be thus regulated, the beans should be removed and placed on the range or mantel, where they will barely simmer. It may be necessary to add more water several times in the course of the morning (in order to keep the beans barely covered). By 10 o'clock in the morning there should be sufficient juice in the kettle, so that bubbles will rise to the surface as the beans simmer; in one-half hour the beans will be ready to serve and should be removed to a place where they will be kept warm. Serve hot with some kind of salad.

Water added while cooking should be boiling hot. Especially in summer, the beans should not be soaked, as they may sour and have a bad flavor. Beans left over may be used in the preparation of bean salad or chili con carne.

465. *Beans, boiled* (for 60 men).

Ingredients used:
15 pounds beans, issue.
2 pounds bacon, diced.

Wash the beans thoroughly and place on the range in a boiler with about 5 gallons of water; when they reach the boiling point skim them and allow to simmer for at least four hours. After they have simmered about two hours, add the bacon and season with salt and pepper. If necessary to add water during the process of cooking, it should be boiling hot. Serve hot.

466. *Beans, lima* (for 60 men).

Ingredients used:
12 pounds lima beans.
½ pound of flour.
1 pound bacon, diced.

Wash the beans thoroughly; place in a boiler with about 5 gallons of water; boil 10 minutes and pour off the water; add the flour and bacon and mix well; salt and pepper to taste; add about 4 gallons of water, and allow to simmer until well done. Serve hot.

The flour is used for the purpose of keeping the beans whole while cooking. Time required to prepare, about four hours.

467. *Beans, stringless* (for 60 men).

Ingredients used:
24 pounds stringless beans.
1½ pounds bacon, diced.

Break the beans into pieces about 1 inch long; wash well and place in a closed boiler with sufficient water to one-third cover them. Add the bacon; place on the range, salt and pepper to taste, and let simmer for three-fourths of an hour; add more water or beef stock (if necessary to barely cover the beans); thicken slightly with a flour batter, and allow to simmer for about 15 minutes. When done the liquid should be of the consistency of thick sirup. Beans left over may be used in making salads.

468. *Beans cooked in a trench.* This is an excellent method when properly done. Prepare the beans in the same manner as if they were to be baked in the Army range in garrison. Dig a trench about 6 inches deeper and 6 inches wider than the camp kettles used, and long enough to allow 6 inches between kettles and between kettles and ends of trench. Build a good fire in the trench and let it burn to coals. Take out two-thirds of the coals, permitting one-third to remain in the trench. Place the camp kettles with lids on in the trench, resting on the coals. Fill in the space between kettles and at the ends of the trench with coal and earth, placing hot coals next to the kettles. Fill in well and cover the kettles to a depth of about 8 inches, about 3 inches of coal and 5 inches of earth, the latter being on top. If this is done about 7 o'clock in the evening, the beans should be cooked by 4 o'clock in the morning. The same cook who has placed the kettles in the trench and covered them should dig them out in the morning, as he will understand better how the lids are set and there will be less danger of getting dirt in the kettles.

Sufficient beans should be baked for breakfast and lunch. If on the march, the beans for lunch should be issued to the men to be carried in their individual mess kits.

469. *Beets, boiled* (for 60 men).

Ingredients used:
22 pounds beets.

Wash the beets thoroughly and boil until well done; hold under a faucet and rub the skins off with the hands; cut into slices, or if young and tender, they may be served whole. Serve hot with cream sauce or gravy poured over them. While washing and cooking be careful not to break the skins.

470. *Cabbage, Bavarian* (for 60 men).

Ingredients used:
30 pounds cabbage.
5 pounds salt pork, or sliced bacon.
1 quart vinegar.

Strip off the outer leaves and cut out the cores; cut up as for sauerkraut; wash and place in a boiler; add the salt pork (or bacon), vinegar, and a gallon of water; season with salt and pepper; boil slowly in an open boiler for three hours, adding boiling water if necessary; then thicken slightly with a flour batter and boil about five minutes longer, when it will be ready to serve.

471. *Cabbage, boiled* (for 60 men).

Ingredients used:
30 pounds cabbage.
5 pounds bacon, salt pork, or corned beef.

Strip off the outer leaves and cut out the cores; wash and place in a boiler with sufficient water to cover; add the meat, season with salt, boil in an open boiler for about three hours, adding boiling water when necessary, at the end of which time it should be ready to serve.

472. *Cabbage, fried* (for 60 men).

Ingredients used:
22 pounds cooked cabbage.
2 pounds bacon drippings.

Chop the cabbage fine and add the bacon drippings; season with salt and pepper; set on a range in a covered pan and fry about one-half hour, stirring frequently to prevent burning.

473. *Carrots, baked* (for 60 men).

Ingredients used:
22 pounds carrots.
1 pound bacon drippings.

Scrape and wash the carrots well and place in an open boiler; cover with water and boil thoroughly done; remove and place in a bake pan with the bacon drippings; season with salt and pepper and bake in a quick oven for about 20 minutes, when they will be ready to serve.

474. *Carrots, mashed* (for 60 men).

Ingredients used:
22 pounds carrots.
4 quarts beef stock.
1 pound bacon drippings.

Peel the carrots and cut into slices not more than one-half inch thick; place in an open boiler and pour in the beef stock; season with salt and pepper; cook slowly until thoroughly done. Add the bacon drippings and mash thoroughly. Serve hot.

Carrots may also be used in various other dishes, such as beef á la mode, beef soup, vegetable soup, etc.

475. *Corn, canned* (for 60 men).

Ingredients used:
10 No. 2 cans corn.
4 quarts beef stock.
2 ounces sugar.
1 1-pound can evaporated milk.

Remove from the cans and place in a boiler; add the beef stock (strained), sugar, and milk; season to taste with salt, and mix well. Place on the range where not too hot and allow to come almost to a boil; thicken slightly with a flour batter, and allow to remain on the range for 15 minutes until it comes almost to a boil, when it will be ready to serve.

476. *Corn, green* (for 60 men).

Ingredients used:
180 ears.

Remove the husks and trim the ends; brush the silk off with a new scrubbing brush; place in well-salted boiling water and boil about 20 minutes. Serve with butter, if practicable.

477. *Egg plant* (for 60 men).

Ingredients used:
20 pounds egg plant.
5 eggs.

Peel the egg plant and slice lengthwise; beat the eggs well and add to them about 1½ pints of water; season the egg plant with salt and dip in the egg and water mixture; roll in flour and place on a board lightly covered with flour; remove with a cake turner and fry in deep grease until browned; place on a platter and drain off the fat well before serving.

478. *Greens* (for 60 men).

Ingredients used:
30 pounds greens.
5 pounds bacon.

Put the greens and bacon in 2 gallons of water, and boil in an open boiler for about two hours; remove the bacon and strain the water from the greens; chop fine and place in a well-greased bake pan; add beef stock to moisten and bake in the oven for about one-half hour; salt and pepper to taste; slice the bacon and serve on top of the greens. Greens may be improved by the addition of minced hard-boiled eggs.

Asparagus, beets, cabbage, dandelion, spinach, and other greens may be prepared according to the above recipe, but the time required for cooking will depend upon the particular kind of greens used. Cabbage greens in particular require more cooking than others.

479. *Hominy* (for 60 men).

Ingredients used:
6 pounds fine hominy.
1 ounce salt.

Place 4 gallons of water in a boiler on the range; when boiling, add the hominy and salt; boil from 20 to 30 minutes; remove to the end of the range and let simmer for half an hour. Serve with milk.

480. *Macaroni and cheese* (for 60 men).

Ingredients used:
6 pounds macaroni.
2 pounds cheese, diced.

Add the macaroni to 4 gallons of boiling water, salted to taste; boil about 20 minutes, but not until it becomes flabby; strain the water off; spread about one-third of the macaroni in the bottom of a well-greased bake pan; then one-third of the diced cheese on the macaroni; continue the alternate layers until all are in the bake pan. Bake in the oven about 30 minutes and serve hot.

If desired, 2 or 3 pounds of toasted bread crumbs and 2 or 3 cans of tomatoes may be mixed with the cheese between the layers of macaroni.

481. *Onions, boiled* (for 60 men).

Ingredients used:
22 pounds onions.

Select onions not more than half as large as eggs; boil from one-half to three-fourths of an hour and serve with cream sauce.

Left-over boiled onions may be used in making gravy, hash, stewed potatoes, or lyonnaise potatoes.

482. *Onions, fried* (for 60 men).

Ingredients used:
12 pounds onions, peeled and sliced.
1 pound lard or drippings.
2 quarts beef stock.

Put all in a bake pan on top of the range with a hot fire. When the water is all evaporated, the fat in the pan will be sufficient to brown the onions. Stir frequently and season with pepper and salt. May be served with beefsteak or as a vegetable.

483. *Onions, stuffed* (for 60 men).

Ingredients used:
15 pounds onions, medium size.
3 pounds toasted bread crumbs.
8 pounds meat scraps.
8 pounds bread scraps.

Peel the onions with a sharp knife and dig out the center from the top end, leaving a shell. Meanwhile prepare a dressing, using the meat and bread, and stuff each onion full. Sprinkle the toasted bread crumbs in a well-greased bake pan and place the onions in

the pan, grease well over the top and bake 40 minutes in a medium oven. Serve hot with chili or tomato sauce poured over it.

The above preparation may be used as the meat component of a meal if desired.

484. *Onions and grated cheese* (for 60 men).

Ingredients used:
15 pounds onions.
1 pound fat.
1 pound cheese, grated.

Peel and slice the onions and fry until well done; mix the grated cheese with the onions and bake in a hot oven (about 12 counts) for 20 minutes.

485. *Parsnips, baked* (for 60 men).

Ingredients used:
22 pounds parsnips.
1 quart beef stock.
3 pounds bacon.

Scrape and wash the parsnips thoroughly and place in a well-greased bake pan; season with pepper and salt and pour the beef stock over them; place strips of bacon over the parsnips and cover with a pan to prevent evaporation; place in the oven and bake slowly until thoroughly done.

Parsnips may also be used in beef and vegetable soups. This is not recommended, as they give a strong flavor.

486. *Parsnips, mashed* (for 60 men).

Ingredients used:
30 pounds parsnips.
1 pound bacon drippings.
4 gallons water.

Scrape and wash the parsnips thoroughly and place in an open boiler; pour the water over them and cook slowly until thoroughly done. When done, pour off the water and add the bacon drippings; salt and pepper to taste and mash thoroughly.

Parsnips left over may be served later by preparing as follows: Place in a bake pan, smooth off the top and grease lightly, and place in the oven until browned, about 40 minutes.

487. *Peas, canned* (for 60 men).

Ingredients used:
10 No. 2 cans peas.
½ pound butter.

Empty the peas into a stew pot; pepper and salt to taste and add the butter; allow to come to a boil, thicken slightly with a flour batter, and let come to a boil again, when they will be ready to serve.

488. *Peas, green* (for 60 men).

Ingredients used:
10 quarts green peas.
5 quarts beef stock.
1 pound butter or drippings.
3 cans evaporated milk.

Carefully pick over and place in a boiler or stew pot; add the beef stock and butter; season with salt and pepper and boil about 15 minutes; thicken with a flour batter and let come to a boil again. Add milk if available, and the peas are ready to serve.

489. *Potatoes, baked* (for 60 men).

Ingredients used:
22 pounds potatoes.

Select potatoes of about the same size; wash well and place in smaller of two pans; rub a little grease over each potato with the hands, and cover with the larger pan; bake until well done, usually about one hour. Pinch each potato to break the skins, just before serving.

To utilize left-over baked potatoes.

Unless care is exercised in peeling these, a large portion of the potato will adhere to the skin. This may be avoided by boiling 10 or 15 minutes and peeling at once.

490. *Potatoes, boiled* (for 60 men).

Ingredients used:
22 pounds potatoes.

Peel and put in cool water; salt and boil slowly until thoroughly done (about 20 to 40 minutes); drain thoroughly; remove the lid

and allow the potatoes to remain on the range about three minutes longer. Serve in vegetable dishes.

491. *Potatoes boiled in jackets* (for 60 men). Select 22 pounds of potatoes of uniform size; wash clean with a brush; soak for a few minutes in cold water; then put in boiling salt water and cook for half an hour. Test with a fork and, if tender, drain at once. Do not allow them to boil until broken as this will cause them to absorb water and become pasty and soggy. Remove the kettle to back of stove, allowing the steam to escape. This will give them a sweet and nutty flavor. Keep hot until ready to serve. The cooking should be so regulated that they can be served immediately thereafter.

492. *Potatoes, browned* (for 60 men).

Ingredients used:
22 pounds potatoes.

Select the small potatoes; wash and boil until done; peel and then grease each potato; spread over the bottom of a well-greased bake pan in a single layer; and bake in a brisk oven until brown, usually about 30 minutes.

493. *Potato cakes* (for 60 men).

Ingredients used:
22 pounds potatoes.
1 pound flour.
2 ounces green chopped parsley.

Run the potatoes through a meat chopper, and roll into cakes weighing about 3 ounces each; roll in flour and fry in deep lard until nicely browned; serve as a vegetable with any kind of meat. Left-over potatoes prepared in any manner may be used in this recipe.

494. *Potatoes, cheesed* (for 60 men).

Ingredients used:
22 pounds potatoes.
1 gallon beef stock.
1 pound grated cheese.

Use any left-over cooked potatoes; cut about the size of a lima bean; season with salt and pepper; mix with the beef stock; add the

grated cheese. Spread 2 or 3 inches deep over the bottom of a well-greased bake pan and bake for about 30 minutes in a quick oven.

495. *Potatoes, creamed* (for 60 men).

Ingredients used:
22 pounds potatoes.
1 gallon beef stock.
1 can evaporated milk.
2 ounces parsley.

Boil the potatoes until well done; peel and slice crosswise; allow the beef stock to come to a boil on the range; thicken with a flour batter and add the evaporated milk; place the potatoes in a bake pan and pour the mixture over them, it being just sufficient in quantity to cover the potatoes. Allow to come to a boil and remove from the range immediately. Meanwhile, chop the parsley very fine and, before serving, sprinkle evenly over the potatoes. Salt to taste.

496. *Potatoes, fried* (for 60 men).

Ingredients used:
22 pounds potatoes.

Wash the potatoes and boil until they may be easily pierced with a fork; peel and slice crosswise; season with salt, adding sufficient fat to moisten; spread over the bottom of a well-greased bake pan to the depth of about 2 inches, and bake in a brisk oven for about 30 minutes.

497. *Potatoes, French fried* (for 60 men).

Ingredients used:
22 pounds potatoes, peeled.

Cut lengthwise into one-half inch slices, and fry in deep lard until nicely browned; after frying, dust slightly with salt, and serve hot with any kind of meat.

On account of the quantity of potatoes to be prepared for an organization mess, it is not advisable to cut in thin slices, as is usually done. This is a dish much relished by the men, and on account of its comparative cheapness it is recommended for frequent use.

In many kitchens they are considered too expensive, because it is believed that a large amount of lard or other fat is required to fry

them. Experiments have proven conclusively that, while considerable lard or fat is required to float them, a very small amount is actually consumed in frying. In recent experiments with pure lard, it was found that only 10 ounces were used in frying 17 pounds of potatoes. One pound of refined cottonseed oil will fry 25 pounds of potatoes.

498. *Potatoes, French baked* (for 60 men).

Ingredients used:
22 pounds of potatoes.
1 pound fat.
2 quarts stock.

Wash, peel, and slice potatoes as for French fried. Place in a well-greased bake pan. Salt to taste. Add stock and fat. Mix thoroughly. Place in medium oven and bake about one hour, or until done. During the process of cooking they should not be disturbed with forks or spoons, but should be, when served, as nearly as possible in the same form as when first placed in the pan. Serve hot.

499. *Potaotes, German boiled* (for 60 men).

Ingredients used:
22 pounds potatoes.
1 pound onions, browned.

Cut the potatoes into pieces about the size of an egg; place in cool water and boil slowly until done; place in vegetable dishes and over each place about two basting spoonfuls of browned onion. Serve hot.

Potatoes left over from this recipe may be used in lyonnaise potatoes, salads, fried potatoes, hash, stews, and various other ways.

500. *Potatoes, hashed* (for 60 men).

Ingredients used:
22 pounds potatoes.
1 gallon beef stock.

Cut the cooked potatoes into pieces about the size of a lima bean; season with salt and pepper, and mix with beef stock the same as when making hash; spread 2 or 3 inches deep over the bottom of a well-greased bake pan; spread a little fat over the top and bake for about 30 minutes in a quick oven.

501. *Potatoes, lyonnaise* (for 60 men).

Ingredients used:
22 pounds potatoes.
2 pounds onions.

Wash the potatoes and boil them until they may be easily pierced with a fork; peel and slice crosswise; wash and slice the onions, fry brown and add the potatoes. Season with pepper and salt, adding sufficient fat to moisten, and spread about 2 inches deep in the bottom of a well-greased bake pan. Bake about 30 minutes in a quick oven.

502. *Potatoes, mashed* (for 60 men).

Ingredients used:
22 pounds potatoes.

Peel, wash in cold water, and boil until thoroughly done; strain, salt, and mash well. Instead of the milk and butter often used in this preparation, carefully strained beef stock and fat may be used. Whip well with a basting spoon for about 5 minutes and serve hot.

503. *Potatoes, sweet, baked* (for 60 men).

Ingredients used:
22 pounds sweet potatoes.

Wash well and remove all defective spots; place in a bake pan and cover with a second pan to prevent evaporation while baking, and bake until well done, usually about 35 minutes.

If desired, the potatoes may be peeled, rolled in fat, and lightly sprinkled with sugar and salt before baking.

504. *Potatoes, sweet, boiled* (for 60 men).

Ingredients used:
20 pounds sweet potatoes.

Wash thoroughly and cut out any defective spots; let boil until thoroughly done; strain the water off, and serve hot with meat and gravy, or butter. Time required, about one-half hour.

505. *Potatoes, sweet, candied* (for 60 men).

Ingredients used:
20 pounds sweet potatoes.
1 pound butter
1 pound sugar.
1 gallon beef stock, strained.

Wash the potatoes and boil until fairly well done; peel and slice lengthwise, spread in three layers in a bake pan, putting about one-third of the sugar and butter on top of each layer; pour the beef stock over the whole and bake in a medium hot oven for 40 minutes or an hour.

506. *Potatoes, sweet, fried* (for 60 men).

Ingredients used:
22 pounds sweet potatoes.

Peel the potatoes and slice lengthwise, as for French fried potatoes, and fry in deep lard.

507. *Pumpkin, baked* (for 60 men).

Ingredients used:
22 pounds pumpkin.
1 pound bacon drippings.

Peel the pumpkin, remove the seeds and clean well; cut in pieces not more than 2 inches square; spread these, in one layer, in a bake pan and pour over them about one pound of bacon drippings; season with salt and pepper; cover with a larger pan to prevent evaporation and bake in a slow oven until well done. Or select pumpkins about 5 pounds each; split in halves and clean well, without peeling; sprinkle with salt and sugar and place in a bake pan, with the cut side up. Bake in a slow oven until thoroughly done.

508. *Rice, boiled* (for 60 men).

Ingredients used:
5 pounds rice.
3 gallons water.
2 ounces salt.

When the water comes to a boil, add the rice and salt. When the rice may be mashed in the fingers, pour into a colander and drain well, after which each grain should be whole and separate.

509. *Rice, fried* (for 60 men).

Ingredients used:
5 pounds rice.
2 pounds fat.
1 pound onions, diced.

Boil the rice as in the preceding recipe; place the fat in a bake pan; set on the range and let come to a smoking temperature; add the onions and let them brown slightly; add the rice and stir continually with a cake turner to prevent burning and to mix the grease with it thoroughly. Rice may be cooked in a hot oven, but must be stirred every few minutes. About 15 or 20 minutes are required to fry it. It may be served with beef curry, Turkish stew, or as a vegetable.

510. *Sauerkraut* (for 60 men).

Ingredients used:
5 gallons sauerkraut.
3 gallons beef stock.

Season to taste and allow to simmer for about two hours. Sauerkraut should be cooked with some kind of meat.

How to make sauerkraut.
Ingredients used—for one gallon:
7¼ pounds trimmed cabbage.
4 ounces salt.

Remove outer green leaves, and after slicing the cabbage fine with cutter, place in barrel and salt; then, with a large wooden masher, stamp until of a mushy consistency. More cabbage and salt may be added and the operation continued until the barrel is full. After the barrel is filled cover the kraut with a clean cloth and then with a board prepared to fit snugly inside of the barrel. The board will be placed on the cloth and a hundred-pound rock on the board while the cabbage is fermenting. Let stand in a temperature of about 70° F. for one month. If the kraut is made in warm weather, the amount of salt used must be increased to 6 ounces

per gallon, and the time it takes for it to ripen will be less than in colder weather. When the kraut is ready for use it will have a decided odor, but when not fully matured it will have an odor somewhat resembling that of beer. The temperature of the place where it is stored has much to do in influencing the acidity acquired in any given time. Each time when removing kraut from barrel, thoroughly wash both cloth and barrel cover, as well as weight and sides of barrel, before replacing. This should be attended to once each week whether kraut is removed or not. Care should be exercised in the selection of a barrel for sauerkraut. Charred barrels should not be used. Oak barrels are preferable.

511. *Spinach, boiled* (for 60 men). See Greens, paragraph 478.

512. *Squash, baked* (for 60 men). Prepared the same as pumpkin, baked. See paragraph 507.

513. *Squash, canned, baked* (for 60 men).

Ingredients used
8 cans squash.

Remove from the cans, season, and place in a well-greased pan; spread evenly and add a small amount of fat; place in a brisk oven and bake for one-half hour, when it will be ready to serve.

514. *Squash, mashed* (for 60 men).

Ingredients used:
15 pounds squash.
2 quarts beef stock.
1 pound bacon drippings.

Peel the squash, remove the seeds and clean well; cut in pieces not more than 2 inches square; place in a boiler and pour over it the beef stock; season with salt and pepper; close the boiler with a tight lid and boil for about two hours (or until well done); add the bacon drippings, and mash well before serving.

515. *Succotash* (for 60 men).

Ingredients used:
1½ gallons corn, cut from the cob.
1½ gallons cooked lima beans.
1 pound bacon, diced.

Mix the corn, beans, and bacon; season to taste; pour over the mixture sufficient beef stock to cover it; place in the oven and stew for 30 minutes; thicken slightly with a flour batter and boil for 5 minutes more, when it will be ready to serve.

516. *Tomatoes, stewed* (for 60 men).

Ingredients used:
20 pounds tomatoes.

Place 8 or 10 tomatoes in a colander at a time, and set in boiling water for about one-half minute; peel, split in halves, and place in the stewpot, stew for one-half hour and add 2 quarts of strained beef stock; season with pepper and salt; and add bread crumbs, if desired.

Stewed canned tomatoes.—Take six small cans tomatoes; remove from the cans, place in the stewpot and add 2 ounces of sugar and one-half pound of bacon drippings; pepper and salt to taste, and, if desired, add bread and beef stock. Place on the range, allow to come to a boil and serve immediately.

517. *Turnips, boiled* (for 60 men).

Ingredients used:
22 pounds turnips.
5 pounds bacon or salt pork.

Peel and cut into half-inch slices, across the fibers, which run from top to bottom; add bacon (or salt pork), pepper, and salt; and boil slowly from 40 minutes to 2 hours. In boiling cover completely with water and leave uncovered, in order that the sulphur may escape.

Turnips mashed are prepared as above and mashed well before serving.

Turnips left over may be used again by baking in the oven until slightly browned, while covered with a few strips bacon or salt pork.

SALADS AND DRESSINGS.

518. Salads are easily prepared and, when well seasoned and served, meet with much favor. In addition to the ingredients, a little forethought is necessary as the different components should be prepared some time in advance.

Certain fundamental principles must be observed in their preparation:

1. Salads must be served cold.
2. They should be highly seasoned.
3. They should be attractively served. To accomplish this almost any bits of sightly, tender vegetables may be placed about the dish or on top of the salad. Sprigs of parsley, lettuce, either whole or shredded, celery, green onions, sliced unpeeled radishes, diamond or heart shaped beets, sliced pickles or lemons, shredded cabbage, minced pickles shaken over the salad, are all used.

Any vegetable may be used in salads, either alone or in combination with other vegetables. Lettuce, radishes, and onions may be used in several combinations. Cabbage, shredded fine and soaked in cold water for two hours, makes a satisfactory salad. Stringless beans or peas that have been cooked and cooled may be used alone or in combination with other vegetables. An excellent salad may be made of beets, either alone or preferably combined with other vegetables. The beets should be cooked, then diced and allowed to stand in vinegar for one hour. Potatoes are frequently used in salads, either alone or as a filler in meat, fish, or vegetable salads.

When meat salads are served to troops a vegetable filler should be added to diminish the cost and improve the flavor. Thus, when chicken is provided, one-half boneless chicken and one-half diced celery or other green vegetables should be used. Turkey, tongue, lean beef cut fine may be used. All meat must be well done before using. Fat meat is undesirable as the dressing usually contains olive or cottonseed oil in such quantity that other fats are unnecessary.

Almost any kind of edible fish may be used in salad, although large fish are to be preferred on account of being more easily boned. Fish should be cooked until done, the bones removed, and the flesh mixed with one-third to one-half vegetables.

Cold hard-boiled eggs, olives, onions, or pickles, minced or sliced, when mixed in a salad, spread over it, or used as a garnish, add to the appearance and flavor.

519. *Apple* and *celery salad* (for 60 men).

Ingredients used:

6 pounds apples.
6 pounds celery.
3 pints mayonnaise dressing.

Keep the celery in a damp cloth so that it will be crisp. When ready for use cut it into one-half inch pieces. Peel and core the apples, and just before adding them to the mixture, cut them into pieces similar in size to the celery. Add half the mayonnaise dressing and mix well.

Serve on garnished vegetable dishes, with half the dressing spread on the top.

520. *Bean salad* (for 60 men).

Ingredients used:

15 pounds baked beans.
3 pounds onions, chopped fine.
2 pounds pickles, chopped fine.

Mix thoroughly and season with salt, pepper, mustard, and vinegar. Baked beans left over from dinner are frequently available for salads.

521. *Beet salad* (for 60 men).

Ingredients used:

10 pounds beets.
1 quart mayonnaise dressing.

Clean, cook, and peel beets, dice in half-inch cubes, place in salad bowl and cover with vinegar. Let stand for one hour to cool; strain and place in vegetable dishes. Smooth surface, spread the mayonnaise over the beets and serve immediately.

522. *Celery salad* (for 60 men).

Ingredients used:

12 pounds celery, diced fine.
2 pounds mashed potatoes.
2 pounds bacon grease or olive oil.
1 pint vinegar.
1 pint water.
2 ounces mustard.
12 hard-boiled eggs (if desired).

Dice the celery fine, chop the eggs, and mix the two together. For the dressing, mash the potatoes thoroughly, add the bacon grease (or olive oil) with the vinegar very slowly, and add a little salt, with cayenne pepper and mustard. The sauce should then be of the consistency of cream or gravy.

523. *Chicken salad* (for 60 men).

Ingredients used:
30 pounds chicken.
2 bunches celery, diced.
1½ pints olive oil.
1 quart vinegar.
2 ounces mustard.
1 pound mashed potatoes.

Wash the chicken thoroughly, place in boiling water, and boil until the meat may be easily separated from the bones. Run the meat through the chopper, and when cold, add the diced celery. Mix the mustard, olive oil, potatoes, and vinegar and pour over the salad; mix well and season with pepper and salt. May be served with or without mayonnaise dressing.

524. *Crab salad* (for 60 men).

Ingredients used:
6 cans salted crabs.
12 pounds celery, diced.
½ pound onions, chopped.
½ pint olive oil, or
½ pound bacon, diced and browned.
1 pint vinegar.
1 ounce mustard.
½ pound mashed potatoes.

Place the crabs, onions, and celery in a chopping bowl or dish pan; add the mustard, olive oil, and vinegar to the potatoes, and whip well; pour the mixture over the salad and mix well. Cabbage may be substituted for the celery, and bacon for the olive oil.

525. *Cucumber salad* (for 60 men).

Ingredients used:
20 pounds cucumbers.
3 pounds onions, sliced.

Peel the cucumbers and slice thin; cover with salted cold water nd allow to stand for about two hours. Drain and wash well, add he onions, season with salt, pepper, and vinegar, and serve cold.

526. *French dressing* (for 60 men).

Ingredients used:
3 teaspoonsful salt.
¼ teaspoonful pepper, cayenne.
1 pint cottonseed oil.
1 pint vinegar.

Put the salt, pepper, and oil in a dish and beat thoroughly. When hick and creamy, add slowly the vinegar. This dressing should ıot be poured over the salad until immediately before it is to be aten.

527. *Lettuce salad* (for 60 men).

Ingredients used:
20 pounds lettuce.
6 hard-boiled eggs, minced fine.
1 pound bacon, diced and browned.
1 quart vinegar.

Wash and clean lettuce thoroughly; mix the bacon, mustard, ıinced eggs, vinegar, and a little pepper and salt, and pour over the ettuce when cold. Serve ice cold.

528. *Lobster salad* (for 60 men).

Ingredients used:
12 cans lobsters.
12 pounds celery, diced.
½ pound bacon or olive oil.
½ pound onions, chopped.
1 pint vinegar.
1 ounce mustard.
½ pound mashed potatoes.

Mix the lobsters, onions, and celery in a chopping bowl or dish pan; add the mustard, olive oil, and vinegar to the potatoes and whip well; pour the mixture over the salad and mix well.

Cabbage may be substituted for the celery, and bacon for the olive oil, if desired. If bacon is used, it should be fried to a crisp before mixing with other ingredients.

529. *Mayonnaise dressing* (for 60 men).

Ingredients used:

1 teaspoonsful mustard.
2 teaspoonsful salt.
$\frac{1}{8}$ teaspoon cayenne pepper.
1 quart oil, olive or refined cottonseed.
8 yolks eggs.
$\frac{1}{4}$ pint vinegar.

All ingredients must be cold, and the dressing should be prepared in a cool place. Place the yolks in a bowl of earthenware or wood, whip well for about five minutes, add the oil very slowly, and continue whipping. If the mixture, after half the oil has been added, shows no sign of thickening, continue whipping, without adding oil, until it stiffens considerably, then commence pouring in more oil, beating continuously, until about three-fourths of all the oil has been added. Add the vinegar slowly, then add the remainder of the oil and other ingredients. Set away in a cold place until required. Should the eggs curdle and refuse to thicken, commence, in another dish, with four eggs, and after they have begun to thicken the curdled mayonnaise may be slowly added. It may be served with meat, fish, or vegetable salads by mixing a part with the salads and smoothing the remainder over the surface.

530. *Piccalilli salad* (for 60 men).

Ingredients used:

3 pounds cabbage, minced.
3 quarts tomatoes, minced.
3 pounds onions, minced.
3 pounds pickles, issue, minced.
$\frac{1}{2}$ quart vinegar.

Mix all the ingredients well; season with salt, cayenne pepper, and cloves, and add sufficient water to make 2 gallons. Serve with baked beans or meat of any kind.

531. *Pickled beets* (for 60 men).

Ingredients used:
20 pounds beets.

Boil the beets until done, and rub the skins off with the hand; cut into quarter-inch slices; season with salt and vinegar, and allow to stand about five hours before serving. Serve cold.

532. *Pimento salad* (for 60 men).

Ingredients used:
6 one-pound cans pimentos.
8 pounds cabbage.
1 pound pickles, issue.
1 quart mayonnaise dressing.

Shred cabbage fine and place in cold salt water for an hour. Select one-fourth of the pimentos best for the purpose and slice them into fine cords like shoe strings. Chop remaining pimentos fine; shake water from cabbage and place in salad bowls with the chopped pimentos, the pickles, and one-third the mayonnaise, and mix well. Place the mixture in cold vegetable dishes. Spread the remainder of the mayonnaise and pimento on top and serve immediately.

533. *Potato salad* (for 60 men).

Ingredients used:
20 pounds potatoes, boiled and sliced.
1 pound onions, minced.
1 pound bacon, diced and browned.
1 pint water.
1 pint vinegar.

Place the potatoes in a chopping bowl with the onions over them. Fry the bacon until brown, and while still hot dash over the potatoes, and add the vinegar and water. Mix well, pepper and salt to taste, and allow to stand for two hours before serving.

534. *Salmon salad* (for 60 men).

Ingredients used:
- 6 one-pound cans salmon.
- 4 pounds boiled potatoes, diced.
- 4 pounds lettuce.
- 1 quart mayonnaise dressing.

Cool the cans and empty contents into a salad bowl, chop fine, and mix with the potatoes. Soak the lettuce in cold salt water for one hour, remove and shake well. Shred with a sharp knife and add to the salad. Mix one-third of the mayonnaise with the salad and spread the remainder over the surface. Garnish with sprigs of tender vegetables and serve immediately.

535. *Slaw* (for 60 men).

Ingredients used:
- 30 pounds cabbage.
- 2 pounds bacon, diced and browned.
- 1½ quarts vinegar.
- 6 pounds onions.

Wash the cabbage thoroughly and chop fine; add the onions, bacon, and vinegar, and season with pepper and salt. Mix thoroughly and let come to a boil in a closed vessel, when it will be ready to serve. Serve hot or cold.

Sour cream dressing for slaw (for 60 men).

Ingredients used:
- 1 pint vinegar.
- 1 pint milk.
- ½ pint oil or four ounces of butter, melted.
- 2 teaspoonsful mustard.
- 4 teaspoonsful salt.
- ⅛ teaspoonful cayenne pepper.
- 4 teaspoonsful sugar.

Add the vinegar to the milk, then the oil, then the other ingredients, stirring with a wire beater. Add to the slaw just before serving.

536. *Sliced tomatoes* (for 60 men).

Ingredients used:
15 pounds tomatoes.

Wash the tomatoes well and dip 6 or 8 at a time in boiling water, so that the skins may be easily removed; allow to cool and place in the ice chest until thoroughly chilled; slice thin and place in the ice chest until required.

537. *Stringless bean salad* (for 60 men).

Ingredients used:
12 pounds cold stringless beans.

To the cold beans add a little mustard, salt, and vinegar to taste, and mix well.

538. *Cabbage salad* (for 60 men).

Ingredients used:
10 pounds cabbage.
2 bunches parsley.
1 quart French dressing.

Trim and core the cabbage, wash clean, shred fine and soak in salted ice water for one hour. Take cabbage from the water and shake well so as to remove all the water possible. Place in a large bowl, pour over it the French dressing, and toss it about until every part is covered with the dressing. Place in vegetable dishes and cover with minced parsley and serve immediately.

539. *Vegetable salad* (for 60 men).

Ingredients used:
10 pounds cooked vegetables.

Nearly any kind of left-over cooked vegetables may be used in making vegetable salads by seasoning with mustard, vinegar, and bacon grease or olive oil.

DESSERTS.

540. *Apple rolls* (for 60 men).

Ingredients used:
6 pounds flour.
3 pounds lard.
1½ gallons stewed apples.

Prepare the dough as for pies, and the apples as for apple pies, but a little drier; roll the dough out into strips about 7 inches wide and a little longer than the width of the pan; raise the farther end of the pan about 4 inches from the table; spread one of the strips of dough across the lower end of the pan and place the apples for one roll on this strip; fold the farther side of the strip of dough over toward you and then fold the nearer side from you, tucking it under the roll. Continue making the rolls in the same manner, rolling them up like a cigarette, and placing each in succession beyond the one previously made. When the pan is filled, trim off the ends with a knife. In no case should the rolls be over 3 inches thick. Bake about 40 minutes in a 15-count oven and cut lengthwise of the pan into pieces about 3 inches long. Serve hot or cold with a cream sauce, in vegetable dishes.

Any kind of stewed fruit may be substituted for the apples and the rolls named accordingly.

541. *Apple cobbler* (for 60 men).

Ingredients used:

4 pounds evaporated apples.
5 pounds sugar.
1 ounce cinnamon.
1 grated nutmeg.

Wash the apples thoroughly and soak them in cold water for two hours, then cook in 1½ gallons of water until well done, but not broken. Let cool; then add sugar and spices.

Crust to be made as follows:

Ingredients used:

8 pounds flour.
4 ounces baking powder.
1 pound lard.
1 pound sugar.
16 eggs.
1½ ounces salt.
1 quart and 1 gill of water.

Cream the sugar, lard, and salt thoroughly; then add the eggs, one at a time, stirring constantly. Pour in the water and mix well.

Sift the flour and baking powder together several times; then add them to the mixture and work until smooth.

Take about two-thirds of the dough and roll out one-half inch thick. Line two bake pans and bake in a 15-count oven for 20 minutes. When baked cover both crusts in pans with cold fruit about one-half inch thick. Roll out the remainder of the dough and, with it, cover the contents of both pans, tucking the sides down well. Bake for 20 minutes on the oven shelf in an 18-count oven.

Serve cold with the following sauce:

Ingredients used:
- 1 gallon water.
- 1½ pounds sugar.
- 3 ounces cornstarch.
- ½ nutmeg, grated.

Any fruit may be used. Fresh fruit is preferable.

542. *Apple sauce* (for 60 men).

Ingredients used:
- 5 pounds evaporated apples.

Place the apples in three times their bulk of water and allow to come to a boil; then remove to a part of the range where they will only simmer. After 2 hours, remove and add sugar and flavor with lemon extract or sliced lemons. Serve cold with cake.

If desired, the apples may be run through a colander or meat chopper after cooking.

543. *Brown Betty* (for 60 men).

Ingredients used:
- 9 pounds bread or bread scraps.
- 6 pounds caramelized sugar.
- 2 pounds currants or other dried tart fruit.

Dice the bread into 1-inch cubes and brown in a slow oven; place 3 gallons of water on the range and add the caramelized sugar and the fruit; thicken slightly with a flour batter; pour over the diced toast. Let cook in the oven about 20 minutes and serve with plain sauce.

544. *Cake, corn* (for 60 men).

Ingredients used:

5 pounds flour.
3 pounds corn meal.
4 pounds sugar.
2 pounds fat.
16 eggs.
7 ounces baking powder.
½ ounce extract.
1½ ounces salt.

Whip the sugar, fat, extract, and salt to a cream, and add the eggs slowly; then add the flour, corn meal, baking powder, and sufficient water to make a stiff batter. Bake in an 18-count oven for about 40 minutes. This cake may be made in different forms, using the biscuit molds as well as bake pans.

545. *Fruit cake, dark.*

Ingredients used:

2½ pounds sugar.
2½ pounds butter, fresh.
25 eggs, whole.
7 ounces molasses, sorghum.
3¾ pounds flour.
¼ ounce nutmeg.
¼ ounce cinnamon.
¼ ounce ginger.
¼ ounce cloves.
1½ pounds citron.
5 ounces lemon peel.
5 ounces orange peel.
2½ pounds raisins.
2½ pounds currants.
1½ pounds mixed nuts, shelled.
½ pint brandy or cream.

Slice citron, lemon, and orange peel very thin and about the size of a postage stamp. Then wash in luke-warm water and rinse in clean, luke-warm water. Pick the raisins and currants and nuts over carefully and then wash and rinse them in the same way. When all the fruit is cleanly washed, mix and put in a sieve to drain

for about 2 hours. Then mix in the nutmeg, ginger, cloves, cinnamon, and 12 ounces of flour. The flour is put in to keep the fruit separated and to keep it from settling to the bottom.

Cream the sugar and butter well, then add the eggs, one at a time, stirring constantly. Next add the molasses, stirring it in, then the brandy or cream and, after this, the 3 pounds of flour. When the flour is about half mixed in the batter, add the dredged fruit and spices and continue mixing until the fruit is evenly distributed and the mixture smooth. This mixture makes 21 pounds of cake.

The best results are obtained by baking fruit cake in an earthen crock. If this is not available it may be baked in a pan. Fruit cake requires a long, slow process of baking. An average of 1 hour per pound in a 20-count oven is required for small cakes.

546. *Cake, layer* (for 60 men).

Ingredients used:
- 2 pounds lard, butter, or drippings.
- 4 pounds sugar.
- 16 eggs.
- ½ ounce extract.
- 8 pounds flour.
- 6 ounces baking powder.

Beat the lard, sugar, eggs, and extract together for about 10 minutes, and add the flour, baking powder, and sufficient milk or water to make a stiff batter. Bake about 20 minutes in a 15-count oven. The name given the cake will depend upon the kind of filling used between the layers.

547. *Cake, plain* (for 60 men).

Ingredients used:
- 6 pounds flour.
- 3 pounds sugar.
- 2 pounds butter, lard, or drippings.
- 5 ounces baking powder.
- 8 eggs.
- 1 ounce salt.
- ½ ounce extract.

Break the eggs in a wooden bowl with the lard, sugar, extract, and salt, and whip to a cream; sift the flour in on top of the mixture,

and the baking powder on top of the flour, mixing the baking powder slightly with the flour without disturbing the mixture below. Add sufficient water to make a stiff batter; place in well-greased bake pans with greased papers over the bottom; bake about 40 minutes in an 18-count oven. Do not remove from the pans until cold (about 2 hours); otherwise it will break. This cake may be served with a sauce as cottage pudding.

For variations of this cake see paragraph 322.

548. *Raised cake.*

Ingredients used:
- 1 pound raised dough.
- 12 ounces lard or butter.
- 24 ounces sugar.
- 6 eggs.
- ½ ounce soda, dissolved in 2 tablespoonsful of hot water.
- 1 pound flour.
- 1 ounce nutmeg.
- 1 ounce cinnamon.
- ¼ ounce cloves.
- 1 pound raisins.

Take 1 pound of dough when it is ready to punch down the first time. Add to it the butter and sugar and mix well. Add the eggs, one at a time, working them into the dough; then the soda dissolved in hot water; then the flour. Sift the cinnamon, cloves, and nutmeg together and add to the mixture. After thoroughly working put in a bake pan or a 1-gallon crock. Place in a proof box for 1 hour. Bake in a 20-count oven for about 2 hours. Let cool before removing from the pan.

549. *Crullers*, 1-pound mixture.

Ingredients used:
- 2 ounces butter.
- 4 ounces sugar.
- 2 eggs.
- $\frac{1}{16}$ ounce extract.
- 1 pound flour.
- ½ ounce baking powder.
- ¼ pint water (good measure).

Cream butter and sugar together and add the extract. Beat the eggs well and add them to the mixture. Thoroughly mix the baking powder with the flour and sift on top of mixture; then add the water and stir until smooth. Roll out the dough to a thickness of half an inch and cut with doughnut cutter. Fry to a golden brown in deep grease. Immediately upon their removal from the fat, place the crullers in a colander to drain, after which they may be rolled in granulated sugar or placed on a plate and dusted with powdered sugar.

The same rule applies to this as to other baking powder mixtures; to obtain good results handle as little as possible. The quantity of the liquid used depends upon the strength of the flour. Baking powder may be increased or decreased in this mixture according to its strength as determined by experience.

If the dough is rolled to one-half inch thickness and cut with a 3½-inch cutter, the above mixture will make 19 crullers.

550. *Custard* (1 gallon).

Ingredients used:
- 1 quart eggs.
- 2 quarts milk.
- 2 pounds sugar.
- ¼ ounce extract.

Beat the eggs to a foam with the milk and sugar; pour in a well-greased bake pan and cook in a slow oven. If the eggs are not strictly fresh, it may be necessary to add about 2 ounces of corn starch to each gallon, and this is advisable in any case. The number of eggs may be reduced and the amount of corn starch correspondingly increased. Any flavoring may be used. Serve cold.

551. *Fritters, corn* (for 60 men).

Ingredients used:
- 2½ pounds corn meal.
- 2 pounds sugar.
- 5 pounds flour.
- 4 ounces baking powder.
- 12 eggs.

Make into a soft dough; drop portions of uniform size from spoon into about 3 inches of smoking fat. Keep each fritter as nearly

round as possible and have not more than two-thirds of the surface of the fat covered with fritters at a time.

552. *Oatmeal fritters* (for 60 men).

Ingredients used:
1 gallon oatmeal mush.
1 pound sugar.
8 ounces baking powder.

Mix the mush, sugar, and sufficient flour to make a stiff batter. To one-eighth of the mixture add 1 ounce of baking powder and mix thoroughly, then with a tablespoon cut pieces about half the size of an egg; drop into deep smoking fat and fry until a golden brown. After frying remove them from the fat with a skimmer; put in a colander to drain, after which place in a bake pan to keep warm. Treat each eighth of the mixture in the same manner. Dust the fritters with powdered sugar and arrange in tiers on plates. To improve them add six eggs and a few drops of extract to each gallon of mush.

553. *Gelatin* (1 gallon, for 20 men).

Ingredients used:
3 ounces gelatin dissolved in 3 pints water.
2 pounds sugar.
¼ ounce extract.

When the gelatin is dissolved, add 5 pints of boiling water and the sugar. Allow to cool in the air and add the flavoring extract. Then set in a temperature of about 50° F. until it jellies. Ready to serve.

This is the basis of all jellies. For instance, 1 pint of sherry, ½ pint of brandy, or 1 quart of sliced fruits, berries, etc., may be added together with the flavoring extract as desired, but in no case should the whole exceed 1 gallon.

554. *Ice, lemon* (1 gallon, for 20 men).

Ingredients used:
18 lemons.
1½ pounds sugar.
1 ounce gelatin.
3 quarts water.
1 teaspoonful lemon extract.

Squeeze the juice from the lemons and grate the rinds; add these and the gelatin and sugar to the water. Let come to a boil, cool, and add the extract and freeze.

555. *Ice, orange* (1 gallon, for 20 men).

Ingredients used:
- 12 oranges.
- 3 quarts water.
- 3 lemons.
- 1½ pounds sugar.
- ¼ ounce orange extract.
- 1 ounce gelatin.

Squeeze the juice of the oranges and lemons into the water, at the same time adding the gelatin, three orange rinds, sugar, and the flavoring extract. Add sufficient water to make 1 gallon and freeze.

556. *Ice, pineapple* (1 gallon, for 20 men).

Ingredients used:
- 3 or 4 pineapples, according to size, or
- 2 No. 2 cans pineapples.
- 1½ pounds sugar.
- 2 quarts water.
- 1 ounce gelatin.

Place the water on the range and let it come to a boil; add the juice of the pineapple (if canned pineapples are used), and dice the pineapples to about the size of a bean, adding them together with the sugar and gelatin to the water. Allow to come to a boil, then cool and freeze.

Raspberries, gooseberries, strawberries, or any tart fruit may be used in the same way. If the fruit contains much acid, the amount of water used should be correspondingly increased.

557. *Ice cream* (1 gallon for 20 men).

Ingredients used:
- 3 ounces flour.
- 1½ pounds sugar.
- 10 eggs.
- ¼ ounce extract.
- 2 cans evaporated milk.

Boil 2 quarts of water and add a batter made of the flour and 1 pint of water; then allow to come to a boil again; remove from the range, and add the sugar, eggs, a pinch of salt, flavoring extract, evaporated milk, and sufficient water to make 1 gallon. Whip well, and allow to cool before putting in the freezer.

558. *Ice cream, chocolate* (for 20 men).

Ingredients used:
- 3 ounces chocolate grated.
- 3 ounces flour.
- 1½ pounds sugar.
- 2 cans evaporated milk.
- 10 eggs.

Put the grated chocolate in 2 quarts of water on the range and let come to a boil; add a batter made of the flour and a pint of water; let come to a boil again and remove from the range. Add the eggs and sugar; whip well and add the milk, together with sufficient water to make 1 gallon; allow to cool before putting in the freezer.

559. *Ice cream, coffee* (1 gallon, for 20 men).

Ingredients used:
- 6 ounces coffee.
- 1½ pounds sugar.
- 4 to 10 eggs.
- 2 cans evaporated milk.
- 3 ounces flour.

Add the coffee to 1 quart of boiling water; then remove from the range, cover well, and allow to stand until cool. Make a batter of the flour and add 1 pint of water and place in a quart of water boiling on the range. Let come to a boil; remove from the range, and strain the coffee into the mixture through a clean cloth. Add the eggs, sugar, and cream. Whip well and add sufficient water to make 1 gallon. Freeze as ordinary ice cream.

560. *Pie crust* (1-pound mixture).

Ingredients used:
- 1 pound flour.
- 9 ounces lard.
- ½ ounce salt.

Rub the lard and flour together in the hands and mix well; add sufficient water to make a moist dough. Have everything cool and work as little as possible. The 1-pound mixture will make about three double crusts.

About 4½ pounds of flour, 2½ pounds of lard, and 1 ounce of salt will make double crusts for 1 dozen 9-inch pies.

561. *Pie, apple.*

Ingredients used:
- 1 gallon stewed apples or 3 pounds evaporated apples.
- 1¼ pounds sugar.
- ¼ ounce cinnamon.

Add the sugar and spice to the stewed apples and mix well. The addition of a few slices of lemon will improve it. Make the pies with a double crust and bake about 20 minutes in a 15-count oven.

The above recipe is sufficient for about seven pies.

Nearly any kind of fruit may be substituted for the apples.

562. *Pie, chocolate meringue.*

Ingredients used:
- 1 gallon milk.
- ¼ ounce salt.
- 8 ounces chocolate.
- 16 ounces flour.
- 24 yolks of eggs.
- 2 pounds sugar.
- ½ ounce vanilla extract.

Mix seven-eighths of the milk with salt and chocolate and cook in a boiler until smooth on top. Stir the flour into the remaining 1 pint of cold milk and pour this into a double boiler with the hot milk and chocolate. Cook for 8 or 10 minutes, until it thickens, stirring constantly. Now cream the eggs and sugar thoroughly. Pour the hot mixture over the creamed eggs and sugar. Replace in double boiler and cook from 1 to 3 minutes, stirring constantly. Remove from the range and when cool add the vanilla extract.

After the pie crust has been baked to a light brown, fill the crust with the above mixture and cover with a meringue made as follows:

Ingredients used:
- 24 whites of eggs.
- ¼ ounce salt.
- ½ pound sugar, powdered.
- ¼ ounce vanilla extract.

Add the salt to the eggs and beat with a whip until stiff and flaky; beat the sugar in slowly, then add the vanilla, beating until the froth is stiff. Place on pies with the aid of a smooth knife and brown on upper shelf of a brisk oven. The mixture makes twelve 8-inch pies, and costs about $1.

563. *Pie cocoanut* (1-gallon mixture).

Ingredients used:
- 20 eggs.
- 1½ pints milk.
- 2½ pounds sugar.
- ½ ounce extract.
- ½ pound butter.
- 5 pounds coconut.

Beat the eggs, milk, sugar, and extract together, and add sufficient water to make 1 gallon. Prepare about 12 or 14 single crusts and spread about 6 ounces of coconut in each crust; then pour in the mixture prepared as above, adding to each pie a piece of butter about the size of a walnut. Bake in a 15-count oven about 20 minutes.

564. *Pie, lemon meringue* (1-gallon mixture).

Ingredients used:
- 2½ quarts water.
- 2 pounds granulated sugar.
- 6 to 10 lemons.
- ½ pound butter.
- 12 ounces cornstarch.
- 16 eggs.
- 1 can evaporated milk.
- ½ pound powdered sugar.

Add the juice and rinds of the lemons to the water; boil 5 minutes and remove the rinds; add the sugar and butter; mix the cornstarch in a pint of water and add, stirring in quickly; let come to a boil and remove from the range. Whip the yolks of the eggs and add to them the milk, and sufficient water to make 1 gallon. This mixture is sufficient for eight pies. Take the usual crust, one for each plate; roll out as usual and prick a few times with a fork; bake the crusts until light brown and pour in the mixture. Let stand for a while and beat the whites of the eggs and powdered sugar to a cream. Place about one-fourth inch of the beaten eggs over each pie and coat with granulated sugar if desired. Bake in a 12-count oven about 3 minutes.

565. *Pie, vinegar* (1-gallon mixture).

Ingredients used:
5 pints water.
½ pint vinegar.
2½ pounds sugar.
6 eggs.
10 ounces cornstarch.

Mix the water, vinegar, and sugar and bring to a boil on the range. Dissolve the cornstarch in 1 pint of cold water; then beat up the eggs, adding them to the cornstarch and water. Add the whole to the boiling mixture on the range. Stir well with a wire whip. Cook about 3 minutes and remove from range. There should be sufficient hot water added to the boiling mixture to make 1 gallon. Pie crust must be filled while mixture is hot, same as lemon pies. This mixture is sufficient for eight pies.

566. *Pie, mince.* For each pie use one-third pound of mince-meat and two-thirds liquid. The liquid may be either sugar, sirup, molasses, cider, or a mixture of one-tenth brandy and nine-tenths water. Mix the mince-meat and liquid thoroughly and use a double pie crust; bake about 20 minutes in a 15-count oven.

To make mince-meat.

Ingredients used:
- 5 pounds beef (cooked).
- 5 pounds suet.
- 20 pounds dried apples.
- 10 pounds dried peaches.
- 1 pound cinnamon.
- ¼ pound cloves.
- 1 ounce black pepper.
- 10 pounds sugar.
- 1 pound salt.
- 10 pounds seeded prunes.

And, if desired—
- 5 pounds currants.
- 15 pounds raisins.
- 2 pounds candied citron.
- 1 pound lemon peel.
- 1 pound orange peel.

Run the beef, suet, apples, peaches, and prunes through the meat chopper, each separately; mix with the spices, adding only sufficient water to moisten; pack in a suitable keg that has been thoroughly cleaned. This preparation is suitable for use in garrison or in the field and will keep as long as water is kept from it. Five pounds are sufficient for 15 pies, the above recipe being sufficient for 150 pies.

567. *Pie, pumpkin or squash.*

Ingredients used:
- 25 pounds pumpkin.
- 6 pounds sugar.
- 20 eggs.
- 1 nutmeg.
- ⅛ ounce cloves.
- ⅛ ounce ginger.
- 1 ounce salt.
- 2 cans evaporated milk.

Peel and clean the pumpkin; cut into pieces about 2 ounces each; pour 1 inch of water into a boiler; then put in the pumpkin. One inch of water will be sufficient, even though the boiler be filled with

pumpkin, as pumpkin (or squash) contains much water. Boil slowly until done, about 40 minutes. Then mash well, add the beaten eggs, sugar, milk, and spices and mix well; make the pies without a top crust, and bake slowly. This recipe may be improved by the addition of a small amount of cream. Sufficient for about 15 pies.

568. *Prunes, stewed* (for 60 men).

Ingredients used:
5 pounds prunes.

Place in a receptacle with about three times their bulk of water and set on a part of the range where they will keep hot but not boil. After two hours remove and season with cinnamon, cloves, or nutmeg and a little vinegar. Serve cold if practicable.

569. *Pudding, apple* (for 60 men).

Ingredients used:
4 pounds apples, diced.
16 pounds bread.
4 pounds sugar.
2 ounces cinnamon.

Stew the apples in 1½ gallons water, slice the bread and toast it; spread the toast in the bottom of a well-greased bake pan; then spread over it a layer of the apples sprinkled with sugar and cinnamon; continue alternate layers of toast and apples until all are used; bake in a quick oven about 20 minutes and serve with a plain or caramel sauce.

Nearly any kind of fresh or dried fruit may be used and the pudding named accordingly.

570. *Pudding, bread, with sauce* (for 60 men).

Ingredients used:
12 pounds bread crusts.
2 pounds dried fruit.
2 pounds sugar.
1 ounce cinnamon.
2 cans evaporated milk.
6 eggs.

Soak the bread in cold water and squeeze out with the hands; season with sugar and cinnamon; mix well and spread about 1 inch deep in pans; over this spread apout 1 inch of stewed fruit; then another layer of the bread; over the top spread sugar and cinnamon; bake about 40 minutes in a medium hot oven. Serve hot or cold with cream sauce. This makes an excellent dish and gives an opportunity to use all the scraps of bread on hand. A better pudding may be made by dipping the bread in milk and not squeezing it out. It will be still further improved by adding eggs.

571. *Pudding, corn starch* (for 60 men).

Ingredients used:
- 4 pounds sugar.
- 1 ounce salt.
- 3 packages corn starch.
- 4 cans evaporated milk.
- 1 ounce flavoring extract.

Dissolve the corn starch in about 3 quarts of cold water; add 3 gallons of boiling water, the sugar, salt, and milk. After cooking 5 minutes remove from the range, cool, and add the extract. This pudding is improved by the substitution of milk for water and the addition of about four eggs to each gallon. Pour into vegetable dishes, and when cool set in ice box; serve cold with milk.

572. *Pudding, plum* (for 60 men).

Ingredients used:
- 2 pounds sugar.
- 3 pounds dried fruit, chopped fine.
- 3 pounds beef suet, chopped fine.
- 1½ ounces salt.
- ¼ ounce cloves.
- 1 ounce cinnamon.
- ¼ nutmeg.
- 4 ounces baking powder.
- 6 pounds flour.

Mix the flour, baking powder, salt, beef suet, fruit, and spices in the order named; dissolve the sugar in water and add together with sufficient cold water to make a stiff dough; use 5-pound lard pails or pudding cans and fill each about two-thirds full of the mixture.

If no lids are provided, tie a cloth tightly over the top of each pail or can. Place in a boiler containing sufficient boiling water to one-third submerge the pails or cans and maintain the water at about the same height during the process of cooking by the addition of more boiling water when necessary. Boil from five to eight hours. Remove from the cans, split lengthwise through the center, and serve in large vegetable dishes, with a dressing prepared as follows:

Sauce for plum pudding.

Ingredients used:
- 1½ pounds sugar.
- 1 tablespoonful lemon extract.
- ½ pint vinegar.
- 1 can evaporated milk.
- ½ ounce salt.
- 4 ounces starch or flour.

Dissolve the sugar in 3 quarts of water; let come to a boil and add a batter made of the corn starch or flour and one-half pint of cold water; add the vinegar, milk, extract, and a pinch of soda.

573. *Pudding, rice* (for 60 men).

Ingredients used:
- 5 pounds rice.
- 15 eggs.
- 3 cans evaporated milk.
- 5 pounds sugar.
- ¼ ounce extract.

Boil the rice for a few minutes and then strain through a sieve; add the eggs, cream, and sugar, with a pinch of salt and sufficient water to cover about one-half inch; bake slowly in the oven until slightly brown. The rice should not be overboiled, as the kernels should remain separate and firm. Serve with cold or hot sauce flavored with lemon.

574. *Pudding, tapioca* (for 60 men).

Ingredients used:
- 2 gallons cold water.
- 2 pounds tapioca.
- 4 pounds sugar.
- 2 pounds dried fruit.

Add the water to the tapioca and let simmer on end of range for about two hours; then add the fruit, and if desired, 12 well-beaten eggs. The fruit and the eggs should be beaten into the mixture while hot.

Raisins, currants, or any tart berries or fruit may be used.

SMALL DOUGHS.

575. *Potato yeast* (1-gallon mixture).

Ingredients used:
- 4 pounds potatoes.
- 2 ounces sugar.
- 1 ounce salt.
- 4 ounces flour.
- 2 ounces dried yeast.

Clean potatoes thoroughly and boil until well done. Place the sugar and flour in a clean wooden or earthen-ware receptacle. Strain the water from the potatoes into another vessel. Place the hot potatoes on top of the sugar and flour, mash them and mix thoroughly. Add hot potato water, mix well, and set aside to cool. Place dried yeast in 1 pint of cold water and soak. When the mixture is about the temperature of the hand add the dried yeast and sufficient water to make 1 gallon. Mix thoroughly. Set in a temperature of about 85° F. to prove.

This yeast will require approximately 10 hours to mature, depending on the temperature, and if after maturing it is kept in a temperature below 60° F., will keep for several days.

576. *Small dough* (1-gallon mixture). *To make the sponge.*—Soak three yeast cakes in a pint of lukewarm water until soft (or use 1 pint of stock yeast prepared in the kitchen) and add two medium-sized potatoes which have been boiled until well done, and add enough lukewarm water to make one-half gallon. Make into a stiff batter, by adding about 6 pounds of flour, and let rise and fall. When it has dropped about 1 inch, add sufficient water to make 1 gallon; make a dough by adding about 8 pounds of flour and the following ingredients:

	Jenny Linds or sweet fruit dough.	Plain sweet dough.
Salt.....ounces..	3	3
Sugar.....pounds..	1½ or 1	¾
Butter, lard, or drippings[1].....do....	2, 1½, 1, or ½	½
Eggs[1].....number..	10, 6, or 4	0
Raisins[1].....pounds..	3, 2, or 1	0
Currants[1].....do....	3, 2, or 1	0
Extracts[1].....ounces..	1 or ½	0

[1] Where two or more quantities are given in the same column, correspondingly large or small amounts should be used together. The richness of the product depends upon the quantities of such ingredients used.

NOTE.—The temperature of the sponge, of the dough, and of the buns while proving should be as near to 80° F. as possible.

Let the dough rise to about three times its size, punch down, work over and permit to rise to twice its original size. Then work into 1-pound loaves (round), weighing the dough on the scales, and let prove for about 15 or 20 minutes. Then, for small doughs, cut into eight equal parts. This can best be done by rolling the proof ball or loaf, cut into a long cylinder, dividing it in halves with the scraper, subdividing each half into halves, and then in a similar way subdividing again. The above recipe is sufficient for about 180 buns, or about 22 Jenny Linds.

577. *To handle a sponge in cold weather.*—The temperature of the room, flour, and water should be such that the sponge, when completed, will have a temperature of from 85° to 90° F. (See par. 77, Part II.) Place the sponge in a suitable vessel and the vessel in a fireless cooker. If one is not available, select another vessel about 3 inches larger in diameter and 6 inches deeper; place cloths or sacks in the bottom of the larger vessel to a depth of 2 inches. Then put the vessel containing the sponge into the larger vessel and close the top of the smaller, packing cloths or sacks over the inner and outer vessels. Close the top of the outer vessel and put it in a warm place in the kitchen. The sponge, thus protected, will be subjected to only a slight variation in temperature during the night. Dry hay, grass, or straw may be sued in lieu of cloths or sacks. This arrangement is similar in action to a fireless cooker and is especially recommended for camp.

578. *Biscuits* (for 60 men).

Ingredients used:
- 10 pounds flour.
- 1½ pounds fat (lard preferred).
- 2 ounces sugar.
- 2 ounces salt.
- 10 ounces baking powder.

Mix the dry ingredients and sift; work in the lard and mix thoroughly; add sufficient water to make a soft dough; roll out about one-half inch thick; cut out with a biscuit cutter and place in bake pan about one-half inch apart; bake in a 12-count oven about 10 minutes; serve hot with butter or sirup.

When using baking powder, use cold water (or milk) and keep in a cool place before baking.

579. *Bread, corn* (for 60 men).

Ingredients used:
- 5 pounds corn meal.
- 3 pounds flour.
- 1½ ounces sugar.
- 8 ounces fat (lard or drippings).
- 8 ounces baking powder.

Mix the dry ingredients and sift; work in the lard and mix thoroughly; add sufficient water to make a soft dough; spread in bake pans to depth of 2 inches, and bake in a 15-count oven about 40 minutes.

580. *Buns, corn* (for 60 men).

Ingredients used:
- 4 pounds corn meal.
- 1 quart yeast.
- 4 ounces salt.
- ½ pound fat.
- 1 pint sirup.
- 5 quarts water.

Let the water come to a boil and whip the corn meal in slowly to prevent the formation of lumps; let boil for 5 minutes; when cool add the yeast, salt, fat, and sirup; add sufficient flour to make a stiff dough, and handle the same as other yeast preparations.

581. *Buns, currant* (for 60 men).

Ingredients used:
3 pounds currants.
¼ pound sugar.
½ pound lard.

Prepare a 1-gallon mixture as in paragraph 576, using in the dough the ingredients above named in addition to those used in the plain dough mixture. After proving and molding into loaves, divide each loaf into eight equal parts, and round up each piece; place in pan about 1 inch apart; glaze the tops with melted lard; set in a temperature of 80° F.; let rise to twice their size and bake in a medium oven (18-count) for 40 minutes.

582. *Buns, Graham* (for 60 men).

Ingredients used:
7 pounds Graham flour.
¼ pound sugar.

Prepare a 1-gallon mixture as in paragraph 576, using in the dough the Graham flour in place of an equal amount of wheat flour and the additional quarter pound of sugar. After proving and molding the loaves, divide each loaf into eight equal parts and round up each piece; place in a bake pan about 1 inch apart; glaze the tops with melted lard or drippings; set in a temperature of 80° F.; let rise to twice their size, and bake in an 18-count oven about 40 minutes.

583. *Buns, sugar* (for 60 men). Prepare a 1-gallon mixture as in paragraph 576; after proving and molding, divide each loaf into eight equal parts and round up each piece; place in the pan about 2 inches apart; glaze the tops with melted lard; let prove about 6 minutes; flatten the tops with the hand and sprinkle well with sugar; set in a temperature of 80° F.; let rise to twice their size, and bake in a 15-count oven about 15 minutes.

584. *Buns, tea* (for 60 men). Use the plain sweet-dough mixture as in paragraph 576, and prepare in the same manner as currant buns, omitting the additional ingredients used in the latter.

585. *Cake, apple* (for 60 men).

Ingredients used:
12 pounds fresh apples.

Prepare a 1-gallon mixture of sweet dough as in paragraph 576. After proving and molding, roll out in pieces of about 1 pound each and about 8 inches square; place in the bake pans, peel the apples and cut into very thin slices; place in thin layers over the top; sprinkle with a little cinnamon and sugar; let prove to twice their size, and bake in a 20-count oven about 30 minutes. If desired, a custard consisting of one-third eggs and two-thirds milk, with about 2 pounds of sugar to the gallon, may be poured over the cake before baking.

Kuchen, apple.—Prepare a 1-gallon mixture of sweet dough as in paragraph 576, molding it into pieces weighing about 1 pound each; let prove to twice their size; roll out three-fourths of the loaves about the size of a pie tin and about one-fourth inch in thickness; put in pie tin and cover with a thin layer of cooked apples, seasoned highly with cinnamon and sugar; then use the remainder of the dough, cut into strips weighing about 1 ounce each, by placing the strips over the fruit, each strip extending entirely across the tin, and press the ends against the dough in the tins so that they will adhere. Bake in a 20-count oven about 30 minutes.

586. *Cake, coffee* (for 60 men).

Ingredients used:
2 pounds sugar.
2 ounces cinnamon.

Prepare a 1-gallon mixture of sweet dough as in paragraph 576; after proving and molding, roll out into pieces about 8 inches square, place in a bake pan, and glaze the tops with melted lard or drippings; sprinkle with sugar and cinnamon mixed; let prove in a temperature of 80° F. until they double in size; bake in a 12-count oven about 20 minutes.

587. *Jenny Linds* (for 60 men). Prepare a 1-gallon mixture as in paragraph 576; after proving and molding into loaves, roll out in circular form and about one-half inch in thickness; glaze the top with melted lard and fold together so that the upper portion will hardly cover the lower portion; let prove in a temperature of 80° F. until they double in size; bake in a 22-count oven about 40 minutes.

588. *Parkerhouse rolls* (for 60 men). Prepare a 1-gallon mixture as in paragraph 576; after proving and molding, cut each loaf into eight equal parts; round up and let prove about six minutes; roll out about one-half inch thick; make a crease through the middle of each piece; glaze over one-half of each piece with melted lard; fold and press the edges together. Place in a well-greased pan about 2 inches apart; let rise and bake in a hot oven (12-count) for about 15 minutes.

589. *Twists* (for 60 men). Prepare a 1-gallon mixture of sweet dough as in 576; after proving and molding, roll each loaf out to about one-fourth inch in thickness; then sprinkle one-half with currants, sugar, and cinnamon, and fold the other half upon it, press down slightly and then cut into strips about 1 inch wide; twist from one end and place in the pan so they will just touch each other; prove in a temperature of 80° F. until it doubles in size, and bake in a 15 or 18 count oven about 35 minutes.

DRINKS.

590. *Cocoa or chocolate* (1 gallon).

Ingredients used:

3 to 5 ounces cocoa or chocolate.
5 ounces sugar.
4 ounces evaporated milk.
1 gallon (scant) of water.

Bring the water to a boil, add the cocoa and boil five minutes; add the milk and sugar to taste. Whip slightly with a wire whipper before serving. One gallon is sufficient for from 6 to 10 men. Serve hot.

591. *Coffee* (for 60 men). Coffee is generally served for breakfast and dinner, and should always be prepared fresh at least once a day. The following method is suggested:

Breakfast: Put 7½ gallons of water in the boiler and let come to a boil; add 2¼ pounds roasted and ground coffee, and remove from the range immediately. Allow to stand 15 minutes; add 1 pint of cold water, and allow to stand a few minutes longer before serving. To sweeten, add 4 or 5 ounces of sugar to each gallon.

Dinner: Allow the grounds to remain in the boiler after breakfast and add sufficient water to make 7½ gallons; allow to come to a boil and add 3 ounces of coffee, roasted and ground, for each gallon of fresh water used; remove from the range and allow to stand 15 minutes; add a pint of cold water, and allow to stand a few minutes before serving.

Coffee should be made for immediate use only.

To parch or roast coffee: Place about 10 pounds of green coffee in a bake pan and set in a brisk oven, leaving the door on the first notch until the coffee is thoroughly dried. Close the oven and stir frequently with a spoon until nicely browned.

592. *Lemonade* (for 60 men).

Ingredients used:
- 7½ gallons ice water.
- 4 pounds sugar.
- 60 lemons.

Squeeze the juice from the lemons with a lemon squeezer and add to the water; sweeten to taste and stir thoroughly before serving. Serve ice cold.

593. *Tea* (for 60 men).

Ingredients used:
- 7½ gallons fresh water.
- 3½ ounces good tea.

Allow the water to come to a boil; remove from range; suspend the tea from the top of the boiler in a muslin cloth and allow to stand in the boiling water for five minutes. The cloth should be sufficiently large to give the tea plenty of room, so that the boiling water will penetrate all portions of it. Remove the leaves and serve immediately.

Iced tea: Using 2 gallons of water and 5 ounces of tea; prepare as in the preceding recipe. Just before serving, add sufficient cold water to make 10 gallons. The juice of a dozen lemons may be added, if desired.

To sweeten tea, add about 4 ounces of sugar to each gallon of tea.

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